

THE "SUCCESS" Turbine Water Wheel.

THIS wheel, built by S. Morgan Smith, of York, Pa., has become widely used and well known. and Mr. Smith owns seven patents, either taken out in his name, or purchased from patentees, covering various improvements. We illustrate some of its features.

Fig. 1 represents the runner and wheel case or curb, with the top taken off so as to show the shape of the gates and chutes, and also the forward turn of buckets of the runner so as to hold the larger body of water coming through the chutes, on the outer parts of the buckets where the most leverage is had, and therefore where the most force is exerted by the water. In small wheels the gates may be of brass or steel; in large ones they are always of cast-iron, unless otherwise ordered.

The scroll-valve gate so largely in use in this country, was the invention of Mr. Ezra Roberts, of Utica, N. Y., more than a quarter of a century ago. It has been extensively used by a number of our most successful wheel builders. The gate of the "Success" is, to some extent, a scroll and a valve gate; but by running one side from inner end out to column line, perfectly straight, a gate is obtained more than three times as thick at the center, than gates on the Roberts pattern.

In the chutes of the "Success" wheel there are no bolts or columns to obstruct the flow of water, or for drift to lodge on. A pivot bolt passes down through the center of the gate, and is always made of brass. The maker bushes the hole in the gate or the pivot bolt, with brass, or non-corrosive metal, when wheels are to work in streams where the acids in the water rapidly corrode iron or steel; and thus a tight and durable joint is formed. Moreover, on account of this straight line of the gate, the gate becomes heavy at the middle, and permits of a hole being bored out (shown at *H* in Fig. 1.) This hole when filled with non-corrosive metal or hard wood, supports the weight of the gate and prevents its wearing and becoming leaky by being opened and closed. Into the outer end of each gate is placed a piece of heavy square $1\frac{1}{4}$ inch wrought iron bar, inserted in such a manner as to always remain tight. Against these wrought iron projections of the gates, the lugs on the lower side of the gate ring engage to open and close the gates, said gate ring being moved by a rack and pinion. The lower side of the ring, and the lugs which engage and open the gates, are shown in Fig. 3.

By shaping chutes as shown in Fig. 1, and pivoting the gates one-third the distance from their inner ends out, a funnel-shaped chute is produced, not only when the gates are fully open, but also when half or even one-quarter open. Such a chute allows the packing of the water by which its full advantage in speed and spouting force is obtained.

Behind each gate is a column or post with an eccentric on it, by which the gates are not only prevented from coming in contact with the runner, but which supports the upper half of the wheel case. By

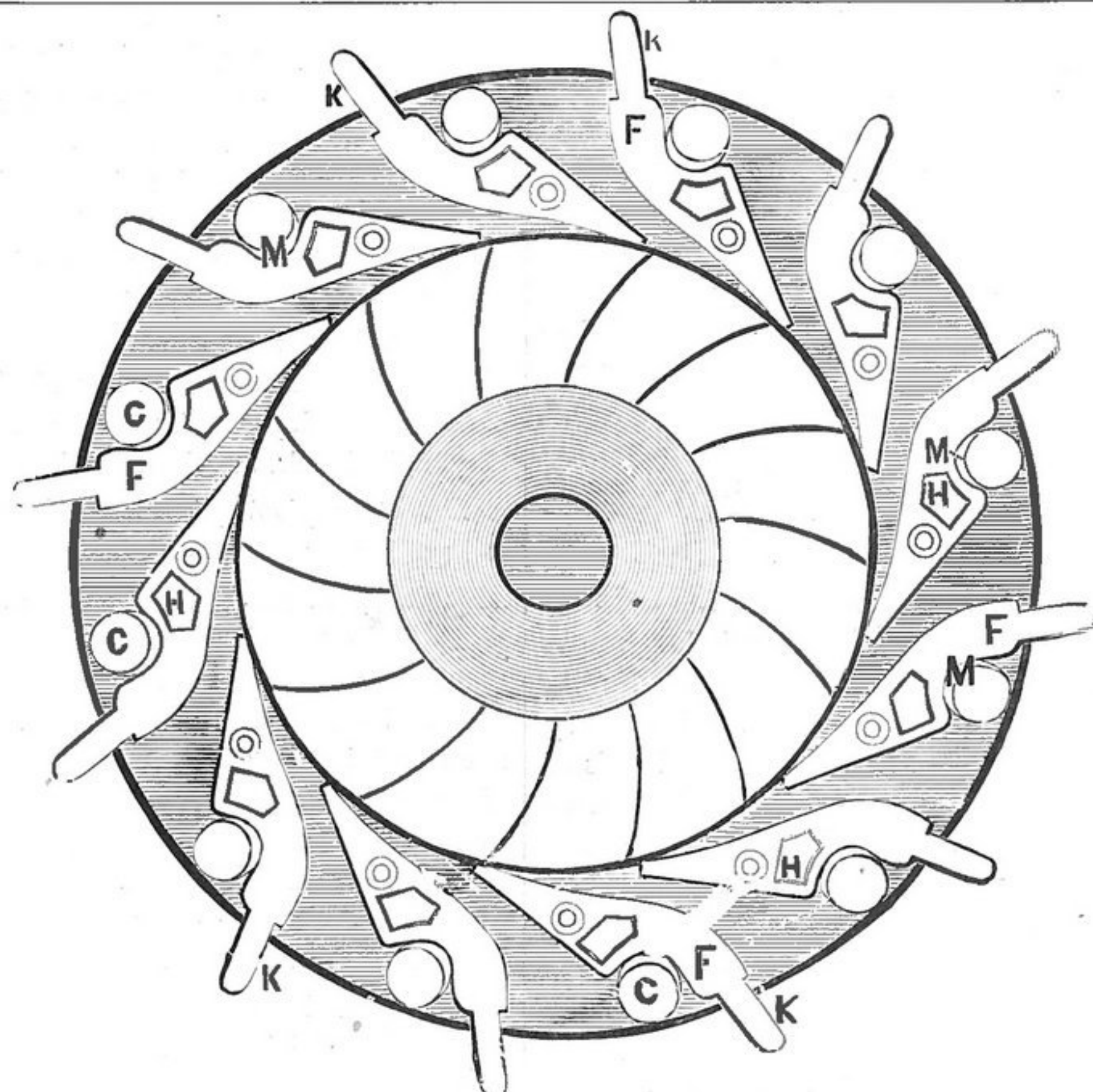


FIG. 1. RUNNER AND WHEEL CASE.

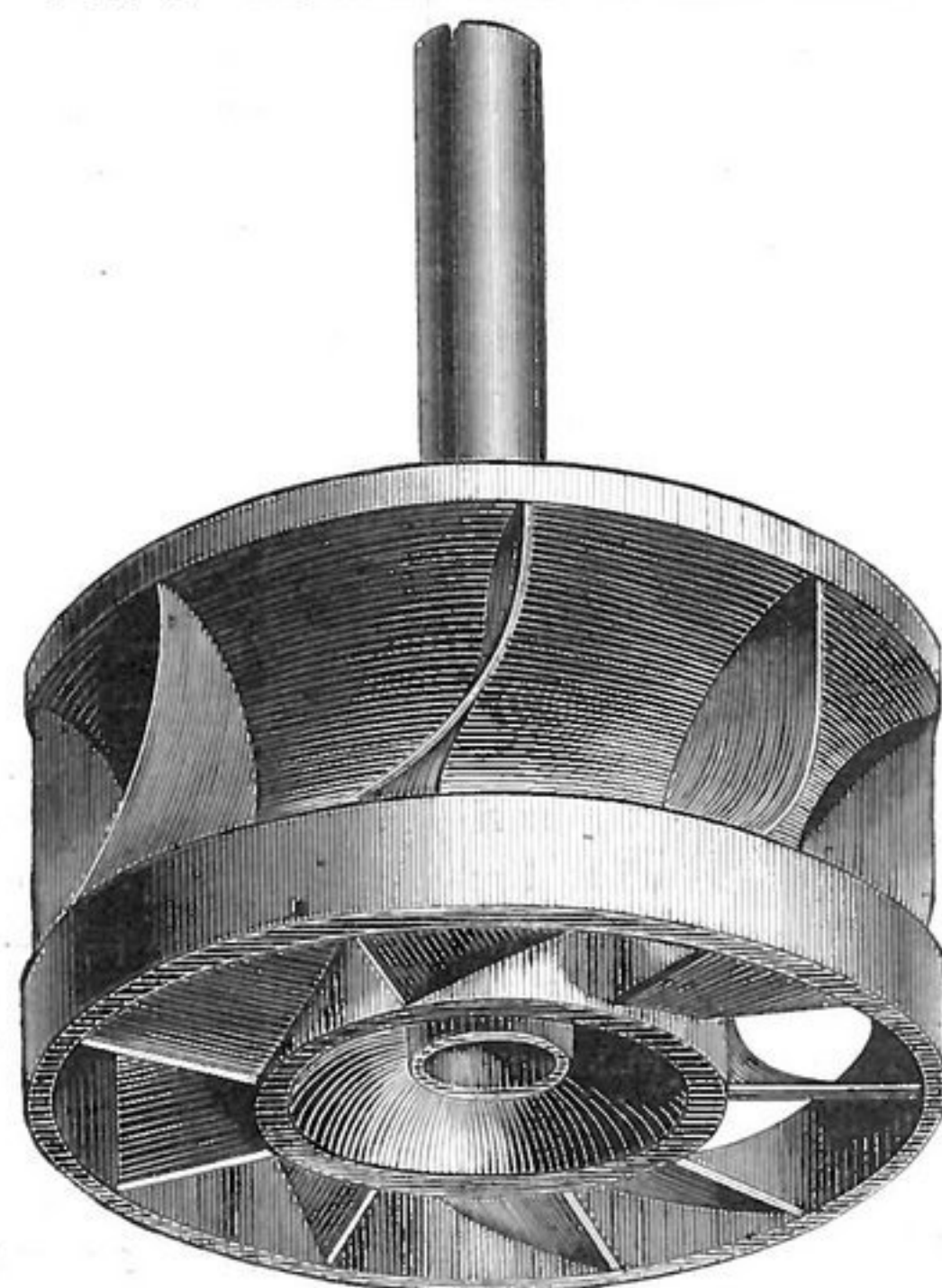


FIG. 2. SHOWING RUNNER.

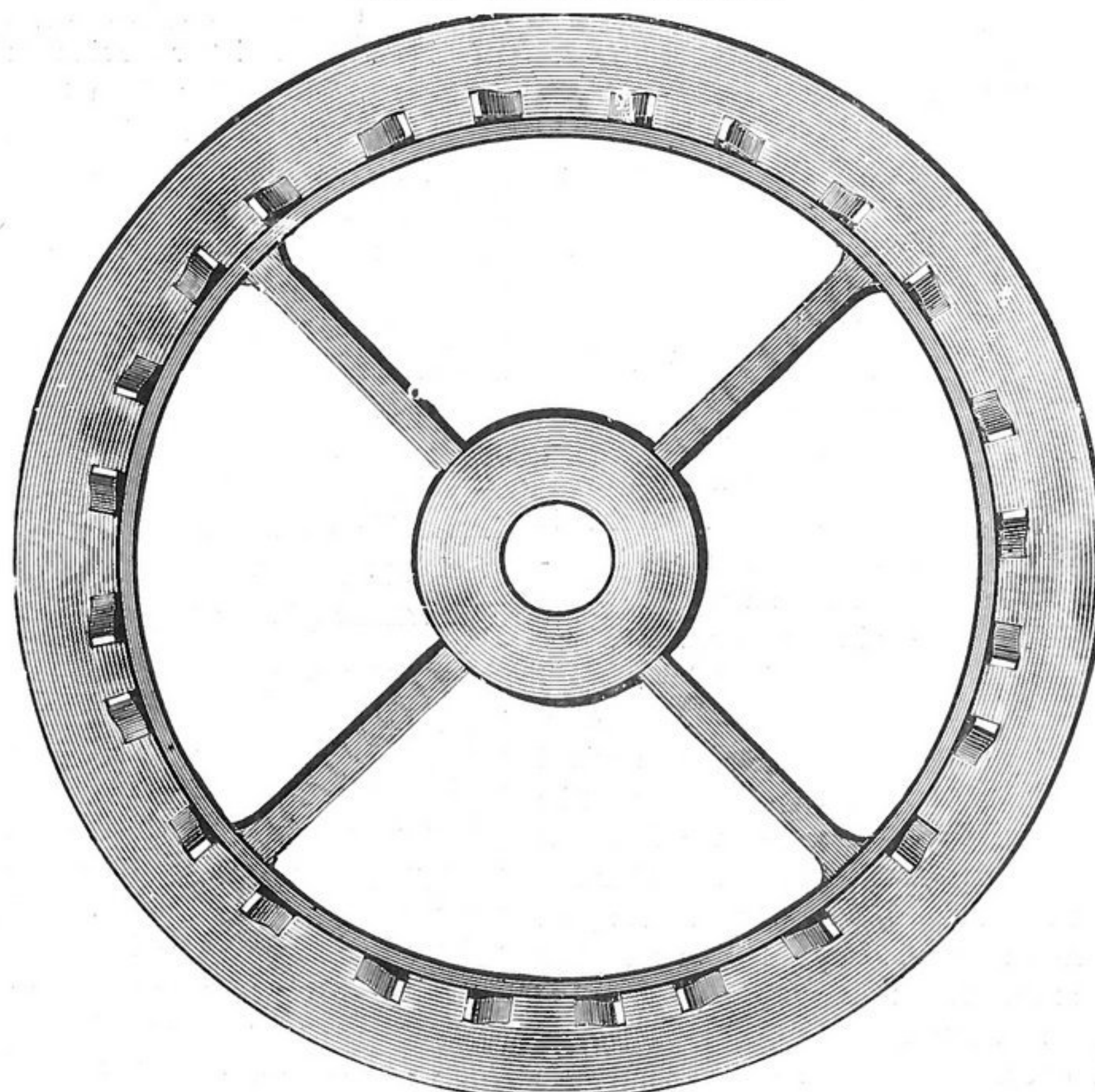


FIG. 3. LOWER SIDE OF RING, WITH LUGS.

having the above-mentioned large square pins at the outer ends of the gates, to project horizontally, instead of vertically, the gates in being opened and closed, are moved squarely and not forced into a twisted position. The device for opening and closing gates, together with their great strength and thickness, non-corrosive bearing and pivot bolts, secures an easy working and tightly fitting gate.

Fig. 2 shows the runner of the wheel proper. The hub is concave, and the water being admitted horizontally, the tendency is to bear the wheel up and relieve the heavy pressure which would otherwise rest upon and wear the step on which it revolves. The novelty of the runner consists in using long buckets, gradually leaning forward without any short or abrupt bend to prevent the natural flow or passage of water, and turning the upper and outer half of the buckets forward in the direction the wheel runs, thus compelling the water that comes through the chutes, to gather in largest bulk on the outer parts of the buckets, and therefore exert more pressure, because pushing chiefly where there is most leverage. On the other hand, it is claimed that the common method of curving the buckets rearwardly causes the water to bear toward the center of the wheel, and lose leverage and power. By this inclination and curvature of the buckets, there is no loss of power from an escape of water around the wheel, as the buckets fit up closely to the case, forming a perfect pocket and holding the water to its proper place, on the outer portion of the buckets of the wheel.

Other advantages claimed for the "Success" are that the wheel buckets present sharp edges to the incoming streams of water from chutes, and cut in pieces fish, sticks, and other obstacles liable to get into a turbine water wheel, and the buckets are stronger, also, than if formed in the old or ordinary way. Another advantage is that back water does not check the speed of this wheel. The buckets being bent, and the outer edges turned forward, causes the outer edge of the bucket to present to the opposing or dead water, a sharp edge, and thus the resistance is claimed to be no more than one-fourth what it is in turbines with buckets formed in the usual way.

The manufacturer is having a large trade for this wheel and his mill machinery. He claims a percentage at part gate of over 80 per cent. and at full gate of almost 90 per cent. The amount of horse power tabled for any one given size of the wheel, is very large: Thus under a 12 foot head, a five foot wheel is tabled at 160 horse power, and a six foot wheel at 210 horse power. Interested parties are invited to send for illustrated catalogues to the manufacturer, S. Morgan Smith, who will supply all needed information.

ABOUT ROLLER MILLING.

As roller milling is now recognized in Great Britain as a thing that has come to stay, it was but natural that its different processes should be discussed at the recent millers' convention at Stockton. A paper on the subject, read by Mr. E. H. Blumenthal, on roller milling, which we reprint from the *Millers' Gazette*, will give our readers an approximate idea of the industry in Great

Britain: I do not intend going very much into theory; but what I purpose telling you is entirely based on experience, which I and the firm, which I have the honor to belong to, acquired not only in this country, but in the four quarters of the globe—an experience founded on the erecting of roller mills suitable for the production of flour from the highest brands of Hungarian down to any kind of a straight run flour—an experience, I beg to repeat, acquired in erecting roller mills for any class of wheat, for soft German or French country wheat, for Rostof, Ghirka or any other of the Black Sea wheats.

Following up the way which the roller milling pursued since its resurrection at the beginning of the past decade—leaving the period of the first introduction of roller mills, dating from the years between 1820 and 1830 out of the reach of this paper, we find roller mills, though slowly at the beginning, but in spite of all—and there were not few controversies—steadily taking hold of those countries where high grinding was at that time the mode of milling. From Hungary (where with its hard glutenous wheat on one side and the demand for different brands of very choice flour on the other side, the cradle of roller milling was in its proper place), roller milling spread out first over the southern part of Germany, where high grinding was the order of the day, and over America. The principle that rollers supersede stones in these countries once admitted roller milling made rapid progress, and (just to give you a few items out of my own experience) I remember that whilst in 1876 it took great persuasion to induce a friend of ours, who planned at that time the erection of a new mill with 15 pairs of stones, to adopt the roller system. We had to convert last year a stone mill, consisting of only two pairs of stones, into a roller mill by simply putting two pairs of rolls in, one pair on wheat, and the other on semolina and middlings.

Only four years ago quite a new mill was erected in Lorraine with 12 pairs of stones, and, had the miller taken our advice then to adopt rollers, which we tried very strongly to impress upon him, he might have been saved the trouble and expense of throwing six pairs of stones out last year and replacing them with a complete roller plant.

The introduction and adoption of roller milling was not so easy in such countries as England, France and Belgium where low grinding was the mode of milling, as in high grinding countries, and that for many reasons. One of them was the appearance of an item to a much larger extent in the new system than in the usual one, that is, the large amount of dealing with middlings and semolina. The next objection raised, was that the non-automatic system of milling, as still in operation in all formerly high-grinding countries—would not do for the latter-mentioned countries. You will allow me to go a little more into detail about automatic and non-automatic milling. You know automatic milling, as in use in this country—where the wheat is not touched between the warehouse and its being converted into finished products—is not known in Austria-Hungary and some parts of Germany. In these countries all the immediate products are taken off in sacks, placed aside, selected for their respective turns, brought on to the rollers and treated quite separate from each other. Most of this is done through manual labor. Now fancy that in many Austria-Hungarian mills the number of different sorts of semolina and middlings amounts to something like twenty, whilst in different other mills in that country you find up to twelve different sorts of semolina and middlings, with seven different grades each, making 84 different kinds of semolina and middlings; and fancy that each and every one of these 84 classes calls for particular and special attention. You will comprehend

that it was connected with some difficulty to arrange roller milling for those countries, where such style of grinding was much too expensive, and much too troublesome. Of course in Austria-Hungary, for instance, where labor is comparatively cheap, and where eleven different grades of flour are produced, this style of milling answers tolerably well, though it cannot be denied that even there the way of handling the intermediate products will be simplified and cheapened in some time to come, at least as far as the employment of hands is concerned.

The third objection raised against roller milling consisted in the prejudice that soft wheat would not do for rollers. Well, I think there are so many complete roller mills running on soft wheat that this objection is now done away with; and, so far as our experience goes, I am entitled to say that "Any kind of wheat answers for roller milling;" but what you want to bear in mind is, to arrange your roller plant so as to be able to grind all sorts of wheat, and next to it, you want to handle your rollers and choose your silks according to the wheat.

When our firm first took it in hand, years ago, to adapt our system of high grinding with rollers to the wants of this country, France, Belgium, &c., we tried to do this on the basis of low grinding—that means, we tried to convert the wheat into flour with as few reductions as possible. We erected for that purpose a complete mill on a small scale and began experimenting with the number of reductions and the size of rolls. As far as the rolls are concerned we were placed in good position through our own foundry, and made our trials with rolls from 6 inches diameter up to 20 inches. After many trials made in that way, we found rolls of 9 inches diameter answering the best. Rolls of a bigger size lengthen the period during which the wheat is subjected to the action of the rolls, disadvantageously, inasmuch as, as far as the break process is concerned, they produced far too much break flour instead of middlings, and when adopting rolls of a large diameter for the reduction process, the flour was too much liable to be killed, the middlings being too long exposed to the action of the rolls. Next to that, we made trials in differential speed, and we found our results quite in accordance with what Professor Kick, an authority in milling, states, as far as the fluted rolls are concerned. A differential speed of 1:3 gives much less break flour and fine middlings than such of 2:3, whilst the latter differential speed gives more pure fine semolina.

HOW TO DETERMINE THE AD-MIXTURE OF ORGANIC OR IN-ORGANIC SUBSTANCES IN RYE AND WHEAT FLOUR.

(Prize essay of the German Millers' Association by Dr. L. Wittmack, Professor of the Agricultural College at Berlin.)

Translated by THE MILLING WORLD.

VII.

The simplest way to detect wheat flour among rye would appear to be a washing out of the gluten. Rye gluten, we know, cannot be washed out of the flour, while it is done with ease in wheat. But it is a curious fact that no gluten can be obtained in this manner from a mixture of 80 per cent. of rye, and 20 per cent. of wheat flour, although the same wheat flour treated separately, yields an abundance of gluten. Even freshly prepared wheat gluten mixed in small quantities with rye flour, cannot be recovered by a washing of the flour. It seems that rye flour contains a peculiar ferment which dissolves the gluten, or, in part, destroys its insolubility. I cannot explain this at the present time, but hope to do so in the near future.

To review shortly: To detect wheat in rye flour, one part of flour is mixed with 50

parts of water and heated to a temperature of $62\frac{1}{2}^{\circ}$ C. A drop of this placed under the microscope allows us to see how many starch grains are hydrated, and how many have remained intact; we observe the hairs or their fragments to see whether the interior canal is smaller than the walls; and finally, the bran shows us the presence or absence of porous and thick cells in the circular layer. An addition of sulphate of anilin bring the hairs out more plainly by coloring them yellow.

b. Detection of rye flour in wheat flour.

This is simpler than the test for wheat flour in rye. The rye starch grains have generally a number of radiating fissures, beginning from the center, besides they are considerably larger than those of wheat, and if we find a grain of 42 to 52 mkm. diameter, we can safely assume the presence of rye flour. But the hairs and the cells of the circular layer and, to some extent, the longitudinal cells, are the reliable marks.

c. Detection of rice flour in wheat flour.

Although rice flour is not used for the adulteration of wheat flour, yet we find the refuse of the rice starch manufactory utilized for this purpose. The microscope detects its presence very rapidly, for the rice starch is formed of composition grains of an oval, spherical, or angular form. Although we will meet only fragments of these grains in the flour, they are, nevertheless, large enough to show their composite nature, for the individual starch grains are very densely packed, and do not separate easily. They are many sided with sharp pointed angles, and from 3 to 7 or 8, very seldom 10 mkm. in diameter.

The epidermis of the rice is very characteristic; it is very thin, the cells in the longitudinal and in the circular layer are very delicate, but the pigmentary layer is more pronounced than in either wheat or rye, and is seen generally as composed of elongated cells. Sometimes we find a few fragments of the rice beard, easily distinguishable by the shape of their epidermis cells, which are short but very wide, and filled with a flinty deposit; they have lateral prolongations which fit into each other. Underneath these we find a hypodermic cell layer with small prolongations, which are inserted into small holes found in the epidermis. The shape of these cells distinguishes the rice from the beards of oats or barley.

d. Detection of oat flour in rye or wheat flour.

Oats have composite starch grains like rice, and single starch grains; these latter, however, form the base into which a varying number of oval or spherical grains are imbedded. These latter are similar to those of the rice, but smaller, from 3 to 7, but mostly 5 mkm. The longitudinal layer is absent in the epidermis of oats, but long thick-walled hairs are found plentifully distributed through the flour. Parts of the beards, which we also meet sometimes, are easily determined by the delicate wavy outline of the cells of the epidermis. In addition to these, long epidermis cells, we find between them a series of short circular cells filled with a flinty deposit, and easily discernable on account of their light-refracting properties.

e. Detection of corn in rye or wheat flour.

This is very simple, for corn has large single starch grains, spherical, five or six sided with a diameter varying between 8 and 30 mkm. Commonly, however, their size is from 16 to 22 mkm., and they have a large fissured interior. The starch grains are closely packed in the exterior part of the corn, and therefore, present a sharp-edged appearance. There are few, if any, air spaces between those cells.

f. Detection of barley in rye flour.

It is a frequent occurrence to find the

refuse of barley milling, ground and mixed with rye flour. It can be detected by the always present fragments of beards, which are almost like those of oats, and differ only by having smaller epidermis cells. A small quantity of the suspected flour placed on the object glass and treated with a drop of caustic soda or potash solution, brings out the desired cells very plainly under the microscope. With soda or with sulphate of anilin, the thick-walled cells of the epidermis color strongly yellow, and the investigation is made easy.

Another method of detecting barley in rye is by reducing the sample to ashes. An addition of a drop of muriatic acid to the ashes, reveals the cells of the epidermis of the barley well preserved, because they are strongly silicified, and therefore almost incombustible. Particles of the beards are also found in the ashes, as well as a few large conical hairs.

The gluten cells of the barley are found in two or three layers, while but one layer is found in all the other cereals. Of course this can be detected only in a cross-section of the grain, and as we are not liable to find it in the flour, this otherwise important fact finds no application here.

The starch grains of barley are, in their maximum diameter, smaller than those of rye, and even of wheat; they vary between 28 and 30 mkm., and only once have I seen one that measured 34 mkm. The majority is 32 mkm., but sinks down to 10 mkm. sometimes. Otherwise the large starch grains of barley are lintal-shaped, like those of rye and wheat, and the small starch grains are very much alike in barley, rye, and wheat, a fact that must not cause any surprise, because all three belong to the same division of the grass family, the *Hordeaceæ*.

g. Detection of buckwheat in rye or wheat flour.

The starch grains of buckwheat are of a composite nature, and are combined into sharp cornered masses; the separate grains are also sharp cornered, and measure from 9 to 13 mkm. in diameter. The yellow brownish bran has epidermis cells which are elongated, and the walls of which present a wavy border.

h. Detection of potato starch in wheat flour.

Nothing is simpler than this by the aid of a microscope, for the potato starch grains are considerably larger than those of wheat or rye. When full grown they are oval, with a nucleus at the smallest end. The largest have a length of 120 mkm., and can be detected with a simple pocket lense among the flour. The smallest grains are spherical or oval, and the nucleus is situated nearer towards the middle. The most of these grains are single, and only a few are made up of two, three or four separate grains. All exhibit a very plain growth of layers.

OLD TIME MODES OF MILLING.

An exchange says, that undoubtedly the germ of many modern processes in milling may be discovered in antiquated modes of grinding, some of which, particularly in the East and in remote localities in Europe appear to be continued to the present day. Some of these are adapted merely to meet the daily requirements of families. The modes adopted may be considered the results of the best local experience. The early records of grinding grain are by no means abundant, and are chiefly gathered from the writings of ancient historians and poets. By pounding and grinding in the earliest mills of Egypt, Greece and Rome, the grain was reduced to a state resembling the meal of the present day, but there is evidence of different grades having been produced. Abraham, for instance, instructed

his wife Sarah to "make ready three measures of fine meal."

The ancient Egyptian mill consisted of two circular horizontal stones nearly flat, the lower one being fixed. The upper one, called in Arabic and Hebrew *rekhal*, turned on a pivot or shaft rising from the center of the lower one. The grain was fed from a hole in the center. Near the margin of the runner was a perpendicular handle. The mill was worked by two women seated opposite each other by a concerted push and pull motion. There were also larger mills turned by oxen and asses. The sweep to which the cattle were yoked was fastened to the runner. This rotation of a runner on a bedstone was the leading feature on the primitive mills of Greece and Rome, the stones being of granite, syenite, mica, schist, quartz or other hard rock, one side having a convex surface which fitted into a concave hollow in the large and stationary stone. In the ancient Syrian cattle driven mills, a stone was rolled on edge in a circular track bedded with stone around a post placed vertically in the center of the track. The early African mill consisted of two stones, 15 or 18 inches in circumference and 5 or 6 inches thick, the runner having a convex surface which fitted into a concave hollow in the large and stationary stone. The upper millstone was worked backward and forward by the hands, the weight of the person being brought to bear on it. The lower stone was placed on a slope so that as the meal was ground in the cavity, it fell on a skin or mat set on the ground in front. There were also mills in the East assimilating to the pestle and mortar in which the grain was beaten.

In Africa mills are found in which the upper stone is a round ball closely fitting into a circular hollow cavity, a rotatory motion being communicated to it with the hand. Corn crushers of this kind have been found in the ancient lake dwellings of Switzerland. The Romans originally pounded wheat in stone receptacles. At a subsequent date, circular millstones worked by slaves were introduced; then followed the application of animal power, which in the capital was superseded by water power. Most of the water mills were situated at the foot of Mount Janiculum, where they were driven by the surplus water brought to Rome by her splendid aqueducts. When Vitroges, King of the Goths, by destroying a portion of the aqueducts, stopped the supply, Belisarius had boats, supplied with revolving paddles, moored in the Tiber, the rapid current of which furnished the requisite motor power. The Romans had a preference for decorticated grain. They regraded the roughly ground or coarse meal, the various grades thus obtained being respectively called *similago*, *similar*, *flos*, *pollen*, *cibarium*.

Germany and Gaul adopted the same system, the grain being first coarsely ground, bolted, and the coarse portions and bran being reground again and again. The stones were slightly grooved so as to give a sort of shearing pressure. Some of the earlier French hand mills had fly wheel, lever wheel, and pinion, which drove the upper stone, grain being fed from a hopper, and conducted by a shoe to the eye of the runner. The delineations of the old Italian mills, so far as their external features are concerned, are in some of the splendid tapestries of the 15th and 16th centuries; they are usually portrayed on the verge of rocky and wooded ravines.

EFFECTS OF THE WHEAT CROP.

The only article of produce which shows special animation now is wheat. The weather ever since the harvest commenced, has been unusually favorable for securing the crop in good condition, it being

practicable to take the wheat almost directly from the reapers to the threshers, then to cars, and to market. There is a steady stream of water flowing from nearly the whole of the immense Western winter wheat growing region to the East. The supplies received here come largely from Kentucky, Southern Indiana and Illinois. The Ohio wheat is moving, but it goes North and East without paying any tribute to Cincinnati. But while wheat is the main article of traffic, the influence of its movement is extending to many other branches of business. It has already caused a drain of currency from Cincinnati to the country, which has made it necessary to order supplies of currency from New York, and thus the idle money which has accumulated there, is being brought into active employment in the way which will do the trade of the country the most good. The country having so promptly realized upon a part of its new wealth, is beginning to buy needed supplies with more freedom, and our markets for dry goods, groceries, etc., are already feeling some of the salutary effects of the good crop, and this will increase as the season advances, and the more considerable part of the wheat crop is marketed.

But the beneficial effect of the increase in wealth through agricultural productions will be marked by the influence which will be exerted in restoring confidence, a restoration which is sure to follow in spite of the drawback of local bank failures in Indianapolis and Richmond, for these are exceptional.

The weather which has been so favorable to the wheat movement, has also brought oats and rye to maturity, and these crops are large and of good quality. Fall barley has also been received in fairly good condition, but the growing corn is suffering in the Ohio Valley from want of moisture; timely rains will yet save it from failure in most localities, but a protracted drought would prove fatal to much of it. Fortunately the great cornfields of the far West have been more favored, and promise luxuriant crops, so the country at large will have an abundant supply if this valley does not. We will not borrow trouble, however, for we may yet be able to report a fair yield; it only requires rain within a short time to secure this.—*Price Current.*

DRIVING BY FRICTION.

For many purposes for which gear wheels were formerly used surface friction wheels are now employed. If the surfaces are properly matched as to material, and are sufficiently large as to area, there appears to be no reason why friction wheels cannot be more extensively employed than they have been heretofore, the *Scientific American* tells us. One of the objections has been that there must be an end thrust, which by its friction absorbs much of the power. It is a baseless objection, as may be seen in the friction clutch of the overhead counter-shaft of the lathe, and in many other situations where the release of the friction is the easiest and most natural movement. To be sure, in this case the amount of contact is very large—the entire circumference of the pulley—but the principle is the same; for where the pulley friction clutch must be held as being one with the moving pulley, so the friction wheels are one so long as they are in contact, and their contact is a mere point against the circumferential contact of the pulley clutch.

An objectionable method of employing the friction driving is to use a metallic surface against a wooden or a leather surface; two surfaces of wood are better; but if iron and leather or iron and wood are used together, the driver should, in all cases, be made of the softer material. For when the driver is thrown in contact with the

driven, it must make a number of revolutions before its contact will be sufficient to start the driven wheel. It is evident, therefore, that if the driver is of iron while the driven is of some softer substance, it (the driver) will wear a crease that will injure the surface of the driven wheel. It is much better, where it is practicable, to make both the driving surfaces of wood.

Excellent wheels are made of maple—hard rock maple—and of lignum vitæ, the lignum vitæ wheel to be the driven and the maple the driver. The wheels should be cast iron spiders made to receive the wood, which should be sawed into wedge-shaped or radial segments, so that the end grain of the wood bears and makes the contact surfaces. Excellent results have been obtained also, with hard rubber (vulcanized) and wood, where there was no oil to rot the rubber, and for small wheels there is nothing better than raw hide as prepared for pickers for looms and for small gears. This will stand oil and resist its disintegrating influence.



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Or any leading Mill Furnisher.

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Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

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Always commands a better price, and gives better satisfaction to the consumer when made by the aid of Crausons' Silver Creek Roller Buckwheat Shucker. This is a fact which we can demonstrate to any miller who will write us.

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Nine full set of the celebrated Stevens rolls, made by the John T. Noye Mfg. Co., Buffalo, N. Y. Six of them were sent to the Commercial Mills, Detroit, Mich., in December last, but were taken from there without having been put in operation, or having been touched by fire, and our rolls substituted. They were made from the present patterns of the John T. Noye Mfg. Co., and have their late so-called Holt belt drive (or words to that effect). We will furnish smooth rolls with these machines, or any kind of corrugations, to parties who may object to the Stevens corrugations. Three set we have recently taken from the celebrated Elkhorn Mills, of H. D. Rush & Co., Leavenworth, Kan., where our rolls are being placed. All of these rolls were made at Ansonia, Conn., and are of the same make as those used by the John T. Noye Mfg. Co. We offer these rolls at half list price. Please write for particulars. Respectfully,

NORDYKE & MARION CO.,
Indianapolis, Ind.

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Advertisements under this head, 25 cents each insertion for 25 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED

By a young man having experience with stone and rolls as first or second miller. Best recommendations. Address stating kind and capacity of mill, BOX 247, Vassar, Mich. 14

SITUATION WANTED.

In a custom grist or flouring mill by a man who has had about two and one-half years' experience as a miller, and can furnish best of references. Address, T. H. NICHOLAS, Forestville, Chautauqua County, N. Y. 6tf

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

WANTED.

Wanted immediately, a competent miller to take charge of a custom mill. Steady work and fair wages to the right kind of man. Address, with terms and references, F. B. MAYHAM, Hobart, N. Y. 1316

WATER WHEELS WANTED.

About 25 inches and less, iron turbines in good condition (first-class). State condition and name of wheel and lowest cash price on cars there. F. WAYLAND, Kanona, Steuben county, N. Y. 1415

A BARGAIN.

One 16-inch under-runner, full iron frame, middlings mill, made by C. C. Phillips, Philadelphia. It is brand new, has never been used, and will be sold at a big bargain as I have now no use for it. Address C. 91, care THE MILLING WORLD, Buffalo, N. Y. 14

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A 50-barrel water power flour mill, situated in best wheat growing section in Ohio, on F. F. W. & C. R. R. Machinery almost new. Good town and good local trade. Twenty-five acres land, two dwellings, stables, plenty fruit, etc. For further information address O. M., in care of THE MILLING WORLD. 1451

FOR SALE CHEAP.

One 6-horse power engine and 10-horse power boiler, all complete, price, \$350; one 8-horse power engine and 10-horse power boiler, price, \$375; one 10-horse power Portable complete, price, \$350; one 10-horse power Russell Traction, price, \$500; one 4-horse power vertical engine, price, \$120. Call or address for particulars EZRA F. LANDIS, Lancaster, Pa. 282

YOU CAN BUY THESE CHEAP.

1400 4x3 elevator cups. } made by W. P. Myer,
1300 4½x3½. } of Indianapolis, Ind.
Three McCully Corn Cob Crushers.
Each of the above articles is brand new, in perfect condition, just as they left the factories, never having been unboxed, and will be sold very cheap for cash. Address S., 30 care THE MILLING WORLD, Buffalo, N. Y. 14

FOR SALE.

Water mill at Whitehall, Trempealeau county, Wis. Mill built in 1878. Five run of stone. Mill easily converted into roller mill. Plenty of water all seasons. Good custom trade. Can command trade of Wisconsin Pinery. Home demand for all. Wheat supply from first hands. Mill forty rods from Depot. Side track to mill can be procured. Whitehall is a thriving town and county seat. Good reasons for selling. Address, WHITEHALL MILL CO., Whitehall, Wis. 7tf

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We have recently remodeled a hominy mill with flour machinery, at Omaha, Neb. Omaha has 50,000 people, and is without a flouring mill. Kansas and Minnesota flour sells wholesale in sacks at \$3.50 per hundred weight. Northern Nebraska hard spring wheat and Southern Nebraska winter wheat can be had in quantities in Omaha at 75 and 80 cents per bushel. We will sell the property at a bargain, on easy terms, to parties who have money to operate. For further particulars address SINKER, DAVIS & CO., Mill Builders and Furnishers, Indianapolis, Ind. 1013

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Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or to grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

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THE tariff collected on foreign grain in Germany for the year 1883 amounted to the equivalent of \$4,500,000.

THE encouraging crop reports from all over the country will go a long way towards an effectual overthrow of the chronic croaker family.

A COPY of the handsome and really valuable new catalogue, descriptive of the specialties of manufacture of Messrs. Howes & Ewell, of Silver Creek, N. Y., was received last week too late for extended notice. It should be in the hands of every miller, and those who have not yet received a copy can obtain one by simply dropping a postal card to the firm.

THERE is certainly no lack of opportunity for American manufacturers in general and to mill furnishers specially, to display their products in Europe at the various exhibitions. The latest notice we receive in this line is an invitation of the Belgian government to all foreign governments to celebrate the completion and inaugurate the port of Antwerp on May 2, 1885, by an International Exhibition.

IN order to discover whether day or night work is more conducive to fires in mills, the German millers have resolved to keep exact statistical accounts for the current year of the time of all fires which occur in the mills of Germany, no matter whether small or large. As the German millers association has an official insurance company, the "Magdeburg," the compilation of the desired statistics will be an easy matter.

IT has been claimed in some parts of Germany that millers should guarantee the baking qualities of the flour which they turn out. In answer to this, the question was discussed at a recent meeting of the millers of Western Prussia, and it was declared that

such a guarantee was an impossibility and, moreover, unnecessary, as the bakers were at the present time fully competent to manufacture a palatable bread from any pure and healthy flour.

THE big mill of Schoellkopf & Mathews at Niagara Falls has a plant of 100 electric incandescent lamps, and at night there is not a dark spot in it. The relative economy between the employment of gas and electricity is yet to be determined, but the absolute safety of the latter appears to be unquestioned. By the way we understand this mill has run steadily twenty-four hours per day, every day, for the past two years, and it has no accumulation of stock whatever.

IT is interesting to note the successful raising of a cross between wheat and rye by the *Rural New Yorker*. Several heads which were sent to Prof. Meehan, of Philadelphia for examination were pronounced by him genuine hybrids. Of course so far this is simply a curiosity, but undoubtedly the *Rural* will continue these experiments and tell us next year whether these hybrids of wheat and rye can propagate their kind, and after that is established, there will be time enough to speculate upon the benefits to be derived from such new form of cereal growth.

OUR attention was recently called to the varying cost of transportation between America and England. Trollope's book on America gave in 1861 the expenses attached to the transportation of a bushel of wheat from Chicago to Liverpool as 69 cents. A similar quantity of wheat, we are told, has been carried this year between the same cities for 15 cents; and this has, beyond question, been done at a profit, for neither railroads nor steamship lines are in the habit of carrying freight at a loss. But although the decrease in the actual expenses of transportation has been considerable, owing to improvements everywhere during the past twenty years, it can hardly be said that the difference should be as 69 to 15; and if 15 cents per bushel paid a dividend, how large must the profit have been at 69 cents.

POPULAR opinion and scientific investigations do not always agree, in fact, they are often directly opposed to each other. So we have been led to believe that the electric light had more penetrating power than any other illuminant known. In order to settle this question, the English lighthouse board instituted a series of experiments with oil, gas, and electric light at the South Foreland lighthouse, and the preliminary report shows that the scientific iconoclast has again destroyed a popular delusion, and that, quantity for quantity, the electric light possesses in hazy weather, less power of penetrating than gas light. Of course the quantity of heat developed by the burning of very large volumes of gas, seriously endangers the lamps and lenses of the lighthouse apparatus, and for very powerful lights, electricity has for this reason, the advantage. But it is clearly demonstrated that in a dense fog the gas light is visible for a longer distance than an electric light of the same power.

WE have a marvel in the way of cleanliness to disclose. During the past week we had occasion to visit a mill not over a hundred miles from this city, and were courteously shown through the entire establishment. Nothing very strange in that, but here is the point. The mill at the front is five stories above the ground, but at the rear is eight stories. We went through the eight stories; we sampled the products from the rolls; the millstones; the purifiers; the reels; and from the flour spouts; we went through the grain cleaning department,

noting and sampling the work of the smutters, cockle machines, etc., and after a stay of more than an hour and a-half in the mill proper returned to the office with less dust upon our clothing than the ride of a less time from Buffalo, in the cars, had effected. We were told the mill was dirty; that it was not up to its usual state of cleanliness. This may have been so, but it is without any exception the cleanest mill we were ever in, and we have been in a good many.

IF the signers of the declaration of independence had had any idea of the base application to which the word "independent" would be used a century later, perhaps they would have adopted another name for that far-famed parchment which is justly the pride of every American. It is wonderful how very becoming the addition of "independent" is to some of our daily papers, especially now during the turmoil of a presidential campaign. Under the cloak of independence such journals dish out to their readers a quality of literature, which, if published separately in book form, would be condemned as obscene, but which, during election time, is digested with voracity by many of the readers of such papers. On a former occasion THE MILLING WORLD has referred to the fact that the mental status of readers can easily be estimated from the tone of the contents of the journals they peruse, and if we see such "independent" papers, publishing articles which no man would like to have his sister or daughter read, we must either conclude that such papers abuse the title of "independence," or we obtain a very poor opinion of the intelligence of the independent voters of the country. As we happen to know a number of these latter, we are fully justified in rejecting the latter alternative and claim that such papers have no business to pose before the public in a disguise which fits them as well as the lion's skin fitted the donkey in the old fable. The same people who ordinarily devour with the greatest avidity the police record of the daily papers before they look at anything else, will relish any quantity of the most foul stories; that the public taste is, in its larger majority, of anything but a refined kind, is also well known, and if the "independent" papers make it their special aim to cater to the depraved taste of the masses, instead of their better feelings, we are almost ashamed to call THE MILLING WORLD an independent journal. So long as the press devotes its energies to its legitimate sphere, to educate the people by publication of the latest news and discoveries, and the thought of the most advanced minds in their respective fields, it is a blessing to the country, but it becomes a curse, if instead of that, it keeps its readers on the same level, or reduces them to a lower status of civilization than the one which may prevail at the time.

SPEAKING about daily papers, we find a large series of comments and notices on the Greeley party, and the majority condemn in the strongest terms any future attempt at Polar explorations. "Such a heavy loss of life, and what are the results?" is the cry. It will be a sorry day for America when the adventurous spirit is entirely stamped out. Of course everybody understands readily enough that explorers, in trying to open new channels for commerce or enterprise are liable to lose their lives or health, but nobody complains, because we see the immediate results of such undertaking, it inspires us with hope of fresh markets at some future time for our surplus goods, and anything which has a direct bearing upon the "almighty dollar" we can appreciate and admire, even at the cost of vast numbers of lives and dollars. But what is there in Arctic exploration? There is no money in it, as far as the majority of people under-

stand it; but it is always to be thus? The laws of wind and weather are a sealed book to us yet, but as long as there is an inch of ground unexplored on the surface of this earth, we have no reason to despair of its final discovery. It is now conceded everywhere that the daily weather predictions save annually an untold amount of property; what, if by a more complete knowledge of the Polar regions, we are able to foretell only one additional day ahead the coming weather? Would the advantage thus gained not more than compensate the loss of life and money incurred in Polar expeditions? There is hardly a branch of scientific research, but that its pioneers were looked upon as "cranks." Let us only refer to the present numberless applications of steam to prove this. If this present generation does not derive any benefit from Arctic exploration, we are certainly unable to say that future generations will find it equally profitless; every additional mile which men are able to penetrate into the icy regions adds to our knowledge, until a grand generalization can be attained for the benefit of mankind. Fortunately all the cries of newspapers will not stem the tide of adventure, and so long as governments or private individuals are willing to provide the funds necessary for such expeditions, there will always be a sufficient number of competent men willing to risk their lives for the advancement of knowledge.

IT is the popular belief that the Niagara river in its flow past the confines of this city might be economically utilized to generate a vast deal of power could some device be originated to receive and transmit the force now going to waste. So firmly rooted is this belief that the City authorities are prepared to pay over the munificent sum of \$20,000 to him who shall perfect a device for gathering and transmitting this supposed enormous force. A week or two since a number of our wealthy men met in the office of a prominent insurance agency to examine a model and listen to the explanations of the inventor thereof, as also to consider the probability of remunerative returns from an investment by them of \$3,000 to enable the inventor to demonstrate the entire feasibility of his device. The matter is still under consideration and another meeting will soon be held to finally determine whether the prospect is sufficiently alluring to warrant individual subscriptions to make up the amount desired. Unquestionably the current of the river, some six miles per hour, might be utilized in the development of power, but one or two points should not be overlooked, the most prominent of which is, Will it pay? A partial answer to this conundrum may be obtained by a visit to the Frontier Mills, of Messrs. Schoellkopf & Mathews. These mills are so situated that they can be and are driven by power derived from the river, in the ordinary way, or by means of a raceway the flow from which operates upon the ordinary type of turbine water wheels. These water wheels operate however under rather peculiar conditions. The "head" of water is liable to variation at almost any time, not because there is, or can be, any lack of water in the river, but because its flow, or current, is liable to be checked or accelerated simply by the direction of the wind. Thus with the wind strongly down the lake, a "head" of four feet is obtained, but if the wind is as strongly in an opposite direction the "head" may be diminished to three feet. The Frontier Mills have a nominal capacity of 350 barrels per twenty-four hours, and to assure certainty of operation at all times and under all circumstances, it has been found necessary to employ ten turbine wheels. We simply mention this matter that those interested in evolving power from the current of the river may proceed understandingly.

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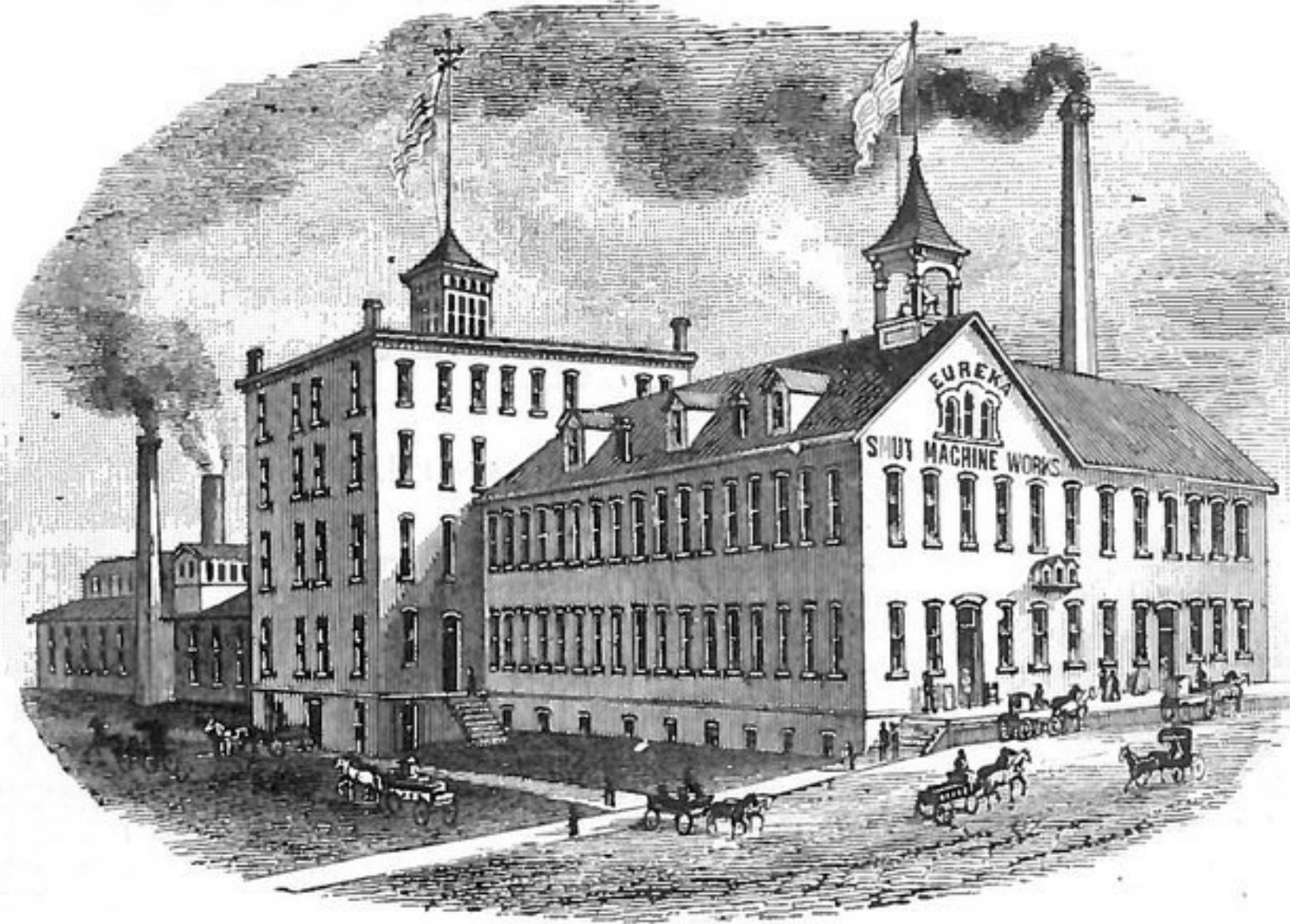
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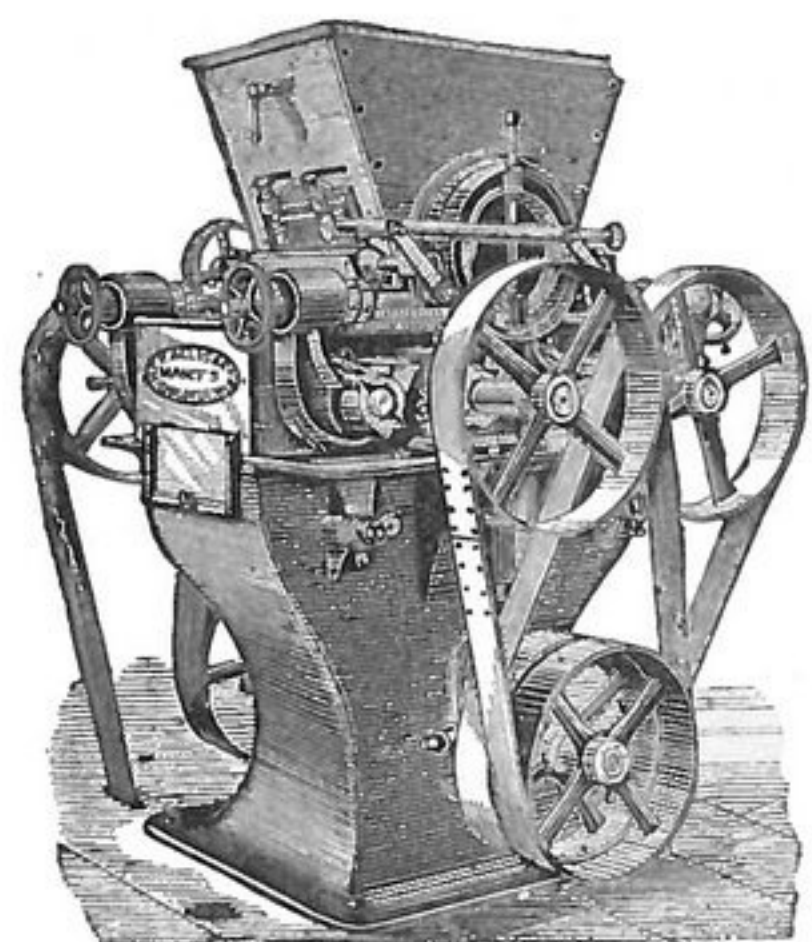
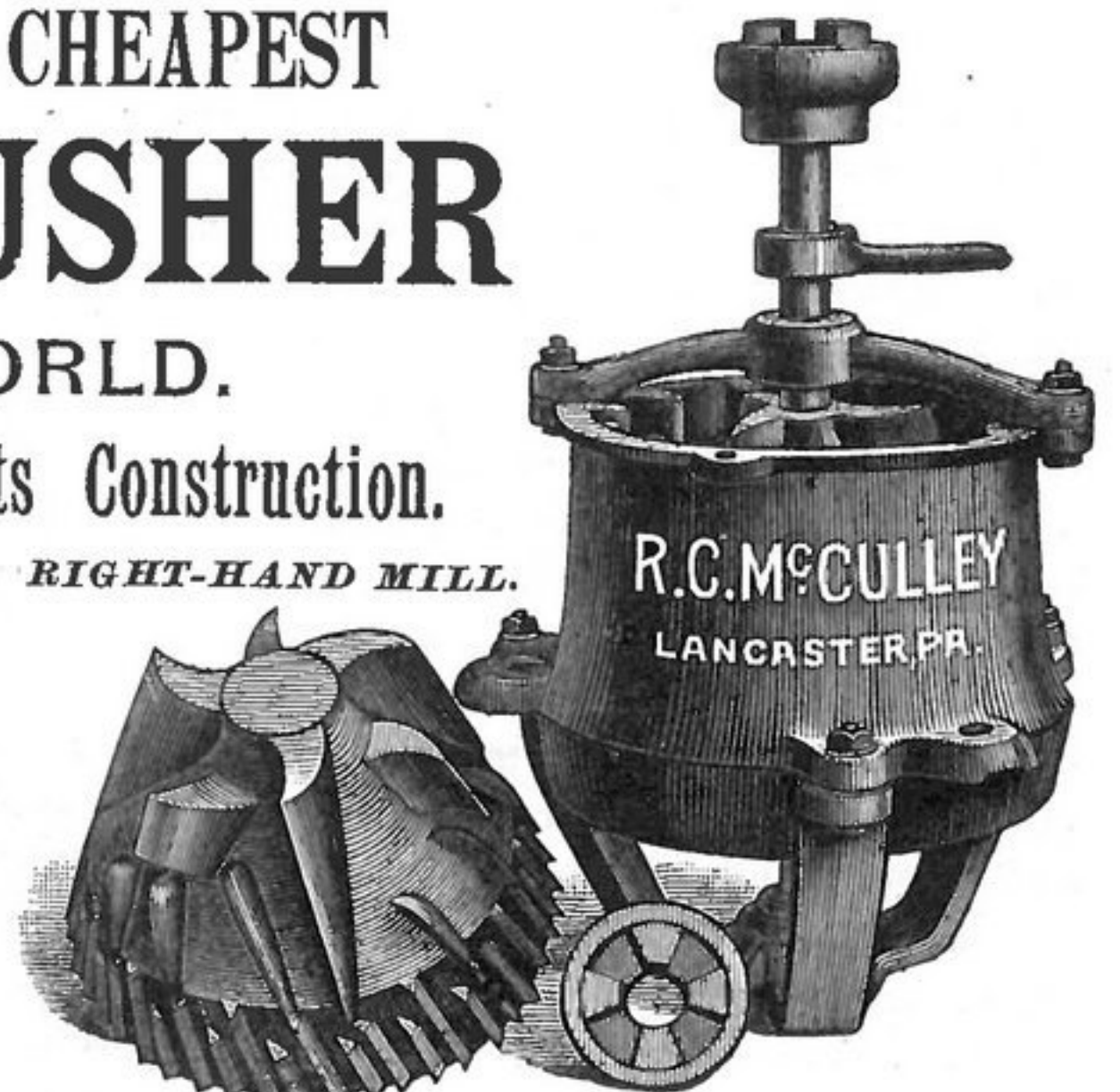
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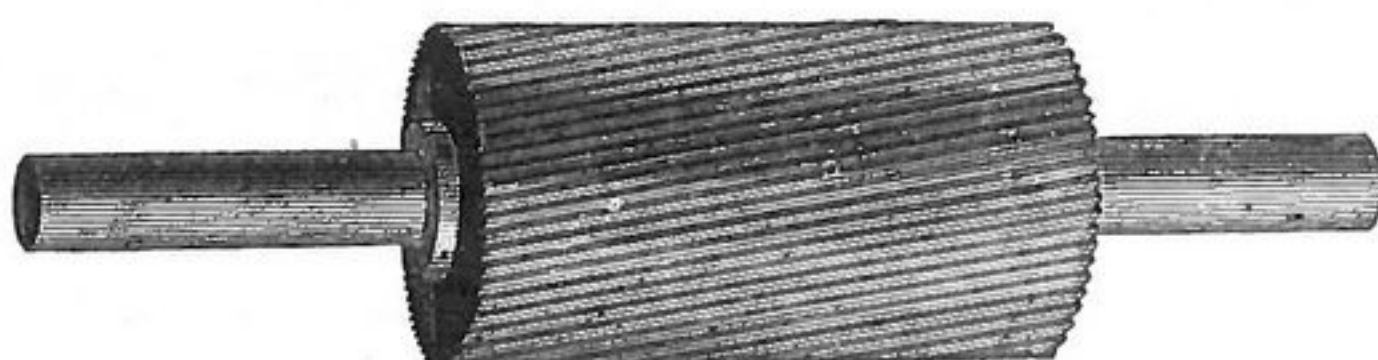
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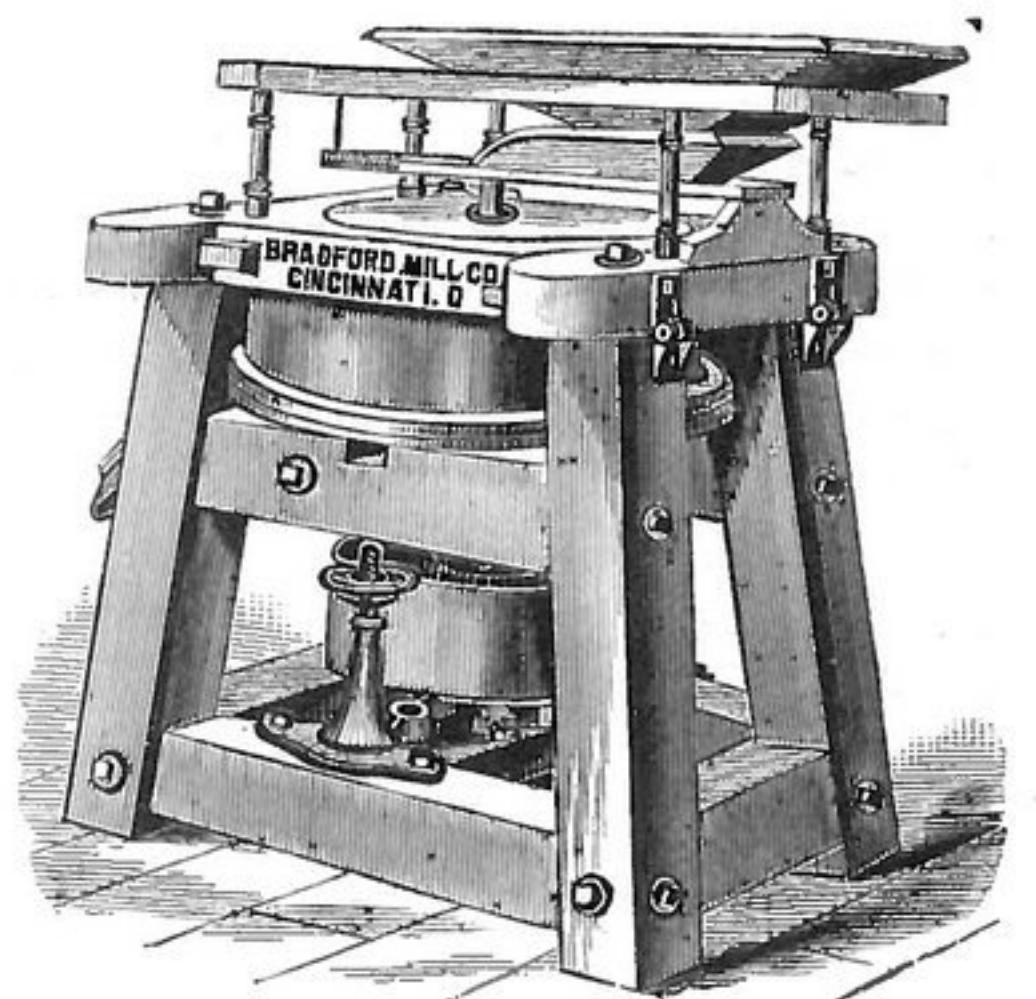
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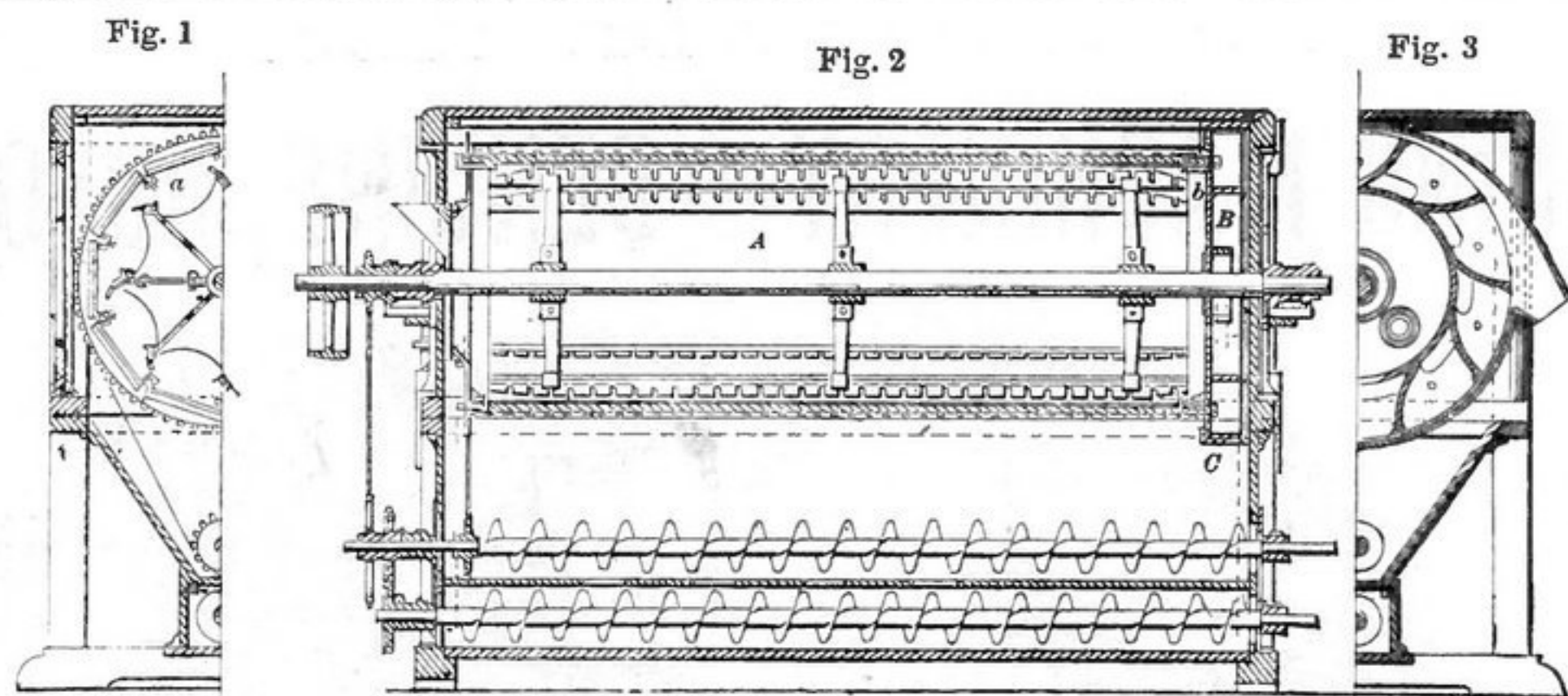


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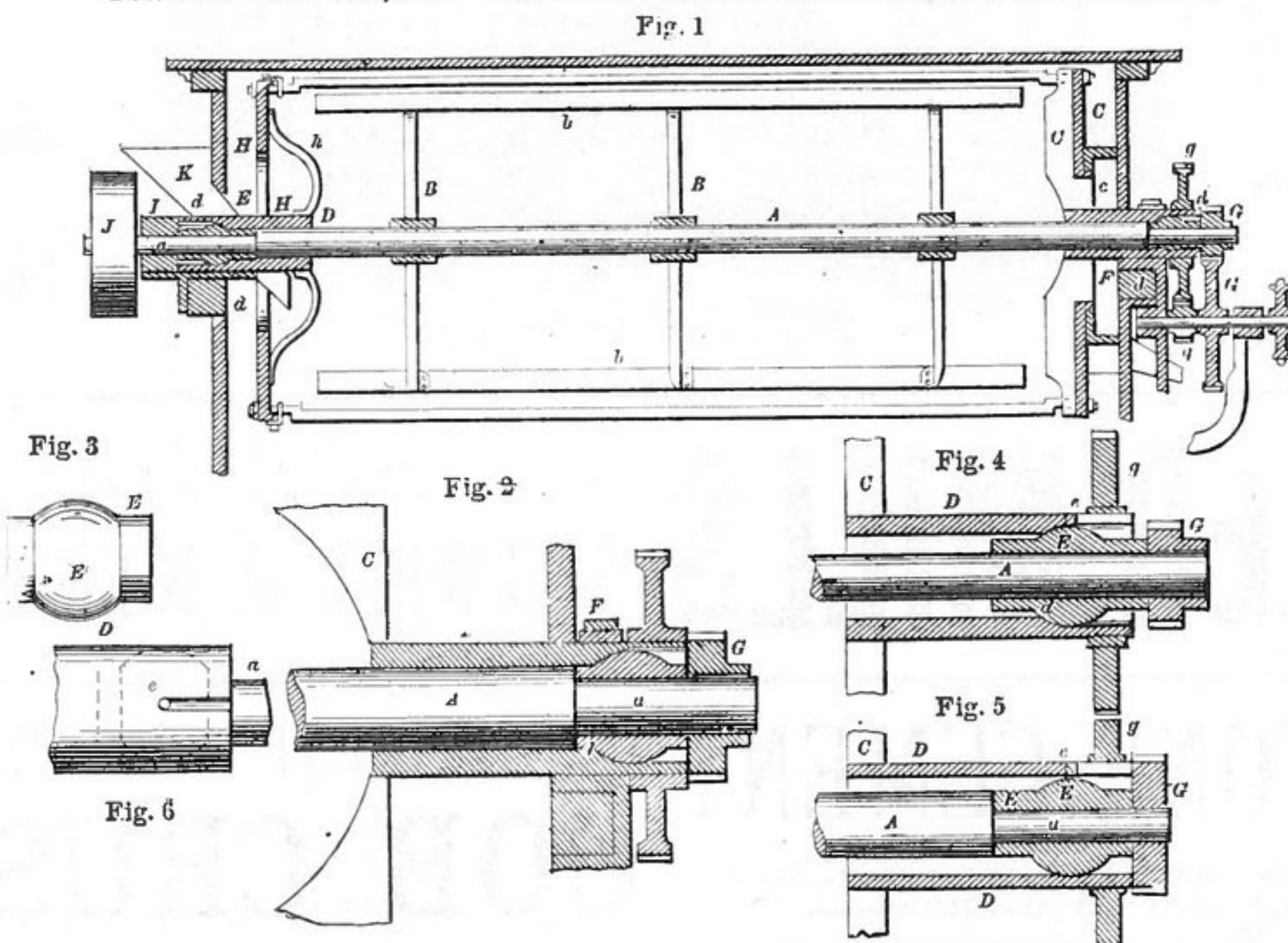


BRAN-DUSTER.

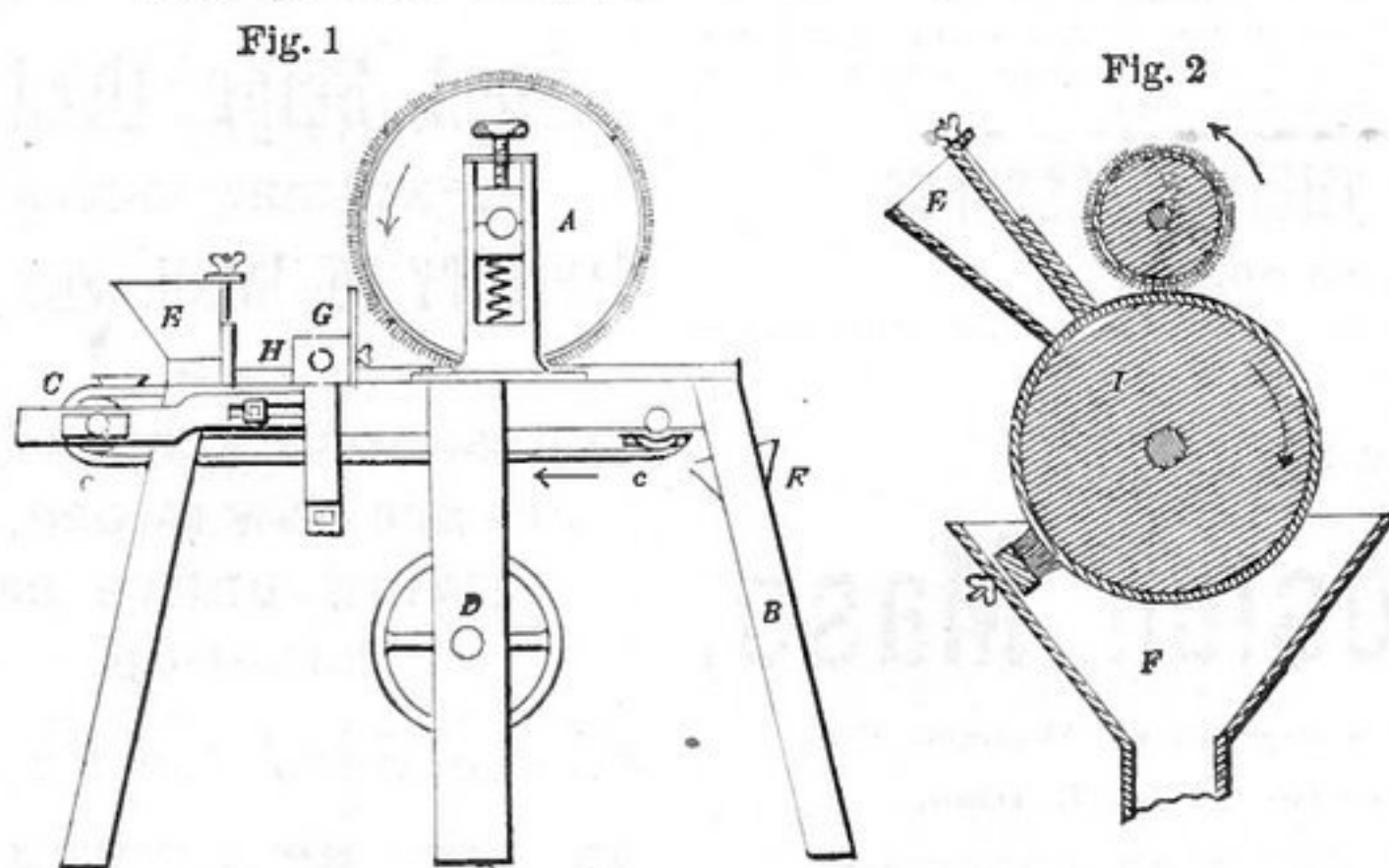
Letters patent No. 302,077, dated July 15, 1884, to Joseph W. Wilson, of Brookville, Kansas. The object of this invention is to promote efficiency in the operation of bran-dusters. Figure 1 is a sectional elevation of the improvement. Fig. 2 is a sectional plan view of the same, taken through the broken line *x x x x*, Fig. 1. To the frame A is attached a casing, D, through the middle part of the bottom of which, around the shaft B, is formed a large opening, E, through which a current of air is drawn by the fan F, attached to the shaft B. The outer edges of the wings of the fan F are inclined outward toward their lower ends, and to the said edges are attached brushes G, which, as the fan is revolved, sweep around the inner surface of the stationary upright bolt H, so as to rub the annular stream of bran passing through the machine against the cloth of the said bolt. The wings of the fan F should be attached adjustably to their arms, so that the brushes G can be adjusted closer to or farther from the bolt H, as may be required. The lower end of the bolt H is attached to the inner edge of an annular plate, I, the outer edge of which is attached to the casing D at a little distance above the bottom of the said casing. The annular plate I forms the bottom of the flour-chamber J. The upper end of the bolt H is attached to the lower edge of a conical cover, K, in an aperture in the top of which is secured a tube, L. The tube L passes through and fits into an aperture in the top of the casing D, to serve as an inlet-spout to the bolt H and as a support to hold the upper end of the said bolt from lateral movement. To the shaft B, a little below the cover K, is attached a convex plate, M, of a diameter a little less than that of the upper end of the bolt H. The plate M receives the bran from the tube L and delivers it in an annular stream around the inner surface of the upper end of the bolt H. To the upper part of the shaft B is attached a pulley, N, around which passes a belt, O. The belt O also passes around a larger pulley, P, pivoted to supports attached to the frame A. The lower journal of the pulley P passes through the top of the casing D, and to it is attached a small gear-wheel, Q, the teeth of which mesh into the teeth of the large gear-wheel R. The gear-wheel R has a hole through its center to receive the tube L, upon which the said gear-wheel revolves. The gear-wheel R is kept in place by collars S, attached to the said tube L. To the outer part of the lower side of the large gear-wheel R are attached the upper ends of one or more bars, T, which pass down through the flour-chamber J, and to their lower ends are attached scrapers U, which, as the gear-wheel R is revolved, sweep around the lower part of the bolt H and push the flour that has settled upon the annular plate I into the spout V, secured in an opening in the said plate I, and through which the said flour passes out of the machine. The bran falls through the open lower end of the bolt H into the bran-chamber W, whence it is pushed out by the scrapers X, the arms Y of which are attached to the shaft B. The bran passes out through an opening in the bottom of the casing D into a spout, Z, from which it falls into some suitable receiver. To the casing D are attached elastic knockers a, which extend downward and inward, so that their lower ends will come in contact with the frame of the bolt H. The knockers a thus cross the paths of the sweeps T, and as each sweep comes in con-



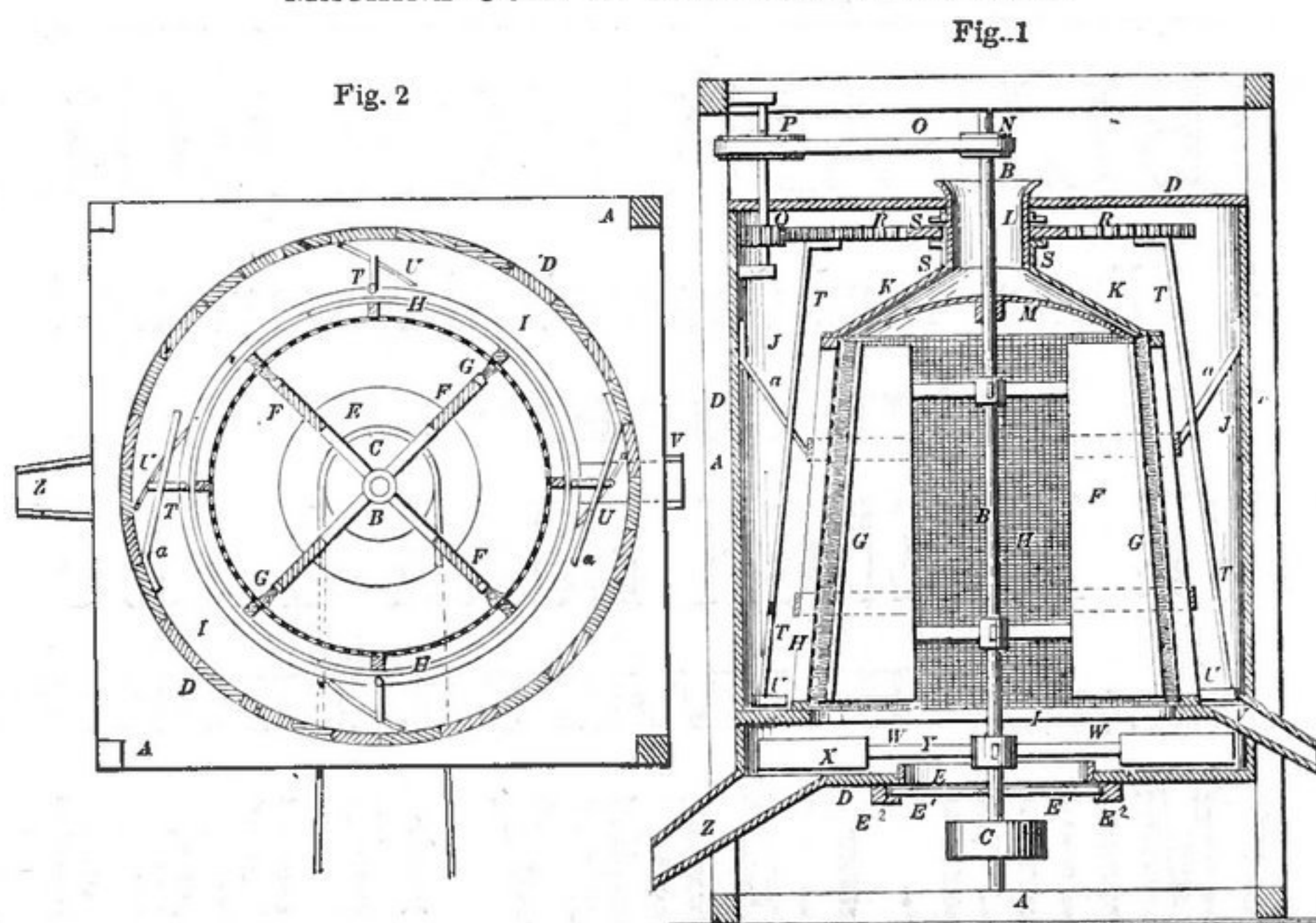
PATENT NO. 302,165. FLOUR BOLTING AND DRESSING MACHINE.



PATENT NO. 302,220. CENTRIFUGAL REEL.



NO. 302,200. ART OF EXTRACTING GERMS FROM GROUND CEREALS AND MACHINE USED IN PRACTICING SAID ART.



PATENT NO. 302,077. BRAN DUSTER.

tact with them they are pushed back, and as they escape from the said sweeps they are thrown by their own elasticity against the frame of the bolt H and jar the said bolt, so as to keep the meshes of the bolt-cloth clear. The volume of air entering through the opening E is to be regulated by a slide, E', placed in rabbeted cleats E², attached to the bottom of the casing D, as shown in Fig. 1.

FLOUR BOLTING AND DRESSING MACHINE.

Letters Patent No. 302,165, dated July 15, 1884, and issued to Heinrich Seck, of Frankfurt-on-the-Main, Germany. This invention relates to improved means of fastening or applying the bolting or screening cloth or silk to flour bolting and dressing machines, and to certain other features of construction. Fig. 1 is a sectional view of parts of a bolting-machine provided with the improvements. Fig. 2 is a longitudinal vertical section of such machine. Fig. 3 is a sectional view of part of the opposite end of the machine. Referring first to Figs. 1, and 2 of the drawings, *a* and *b* are the heads of the bolting-cylinder A, to which heads are fixed near their inner periphery a suitable number of projecting U-arms, *c*, having supporting-ribs *c'*. Every two opposite arms *c* carry a U-bar, *d*, made of cast-iron or other suitable material, said U-bars *d* fitting snugly the U-arms *c* and extending across the entire length of the cylinder A. *h h* are bars, made of iron or other convenient material, which are bent in such a form as to form, when screwed upon the heads *a b*, a space similar to that formed by a tube or pipe slotted lengthwise. The rope *l*, inclosed and held by the linen edge of the bolting-cloth, is inserted into this said space, so that when the bolting-cloth is stretched, the edge, with the rope *l*, will be pressed against the inside of the "slot," between the lower edge of the bar *h* and the upper surface of the wood bars *g*, thereby holding the bolting-cloth in a stretched position. There may be applied one bar *h* between each two adjacent U-bars *d*; or the bar *h* may consist of one single ring screwed to the heads near their inner periphery, above the said bars *d*. In the former instance the bolting-cloth will have a polygonal form, while in the latter case it will be cylindrical. When there is but one ring used, the latter must be so constructed as to allow of a short piece of it being taken out for inserting the end of the rope *l* of the bolting-cloth. When there are several bars *h* applied, it will be necessary only to unscrew one of them to insert the rope *l* into the space formed by the one adjacent bar and the wood bar *g*, and to slide the rope forward until it issues from the other adjacent bar *h*, when it may be tied together, and the unscrewed bar *h* may be screwed on again to cover the connected part of the rope *l*, as will be easily understood. The cloth is then stretched in the usual way.

CENTRIFUGAL REEL.

Letters Patent No. 302,220, dated July 15, 1884, to William H. Dickey, of Jackson, Mich. Figure 1 is a central vertical longitudinal section of so much of a centrifugal reel as is necessary to illustrate this invention. Fig. 2 is a detached view, enlarged. Fig. 3 is a detached view, also enlarged, of the sleeve-bearing. Figs. 4 and 5 are detached views, enlarged, showing modifications. Fig. 6 is a plan or top view of one end of the reel-trunnion, the gear having been removed, and showing the groove *d'* as being cut entirely through the trunnion. Referring particularly to Figs. 1, 2, and 3, A is the beater-shaft, its ends *a a* being of reduced diameter, forming shoulders, for a purpose which will be explained. B B are spiders, and *b b* are beaters mounted upon and carried by the beater-shaft. C C' are respectively the spokes or arms and flanged

of the reel-head at the discharging end of the machine. The spokes C C project radially from a hollow trunnion or tubular support, D, which extends through the casing, and is mounted in a bearing, F' which parts may be of any usual or approved construction. F is a chamber or offal-box having a circular opening in its inner wall, the opening being concentric to the tubular support D D. *e* is a circular flange formed upon the reel-head, and also concentric to the tubular support D, so as to fit closely the opening in the offal-box. The reel-head at the opposite end of the bolt consists of an outer rim, H, connected by means of curved arms *h h* to a hollow trunnion or tubular support, D, like that at the discharging end of the reel. Among the advantages which are claimed to be incident to this invention are the following: In consequence of the tubular support, the sleeve-bearing, and the beater-shaft being mounted upon or in a single bearing or boxing at each end of the reel, there is much less liability of any disturbance in the alignment of these bearings than there would be if the bearings for the ends of the shaft were separate from the bearings for the tubular supports of the reel, and this is true even though the shaft-bearing and the tubular-support bearing were both cast in the same piece with the shaft-bearing at some distance farther from the end of the machine than the tubular support and trunnion-bearing, there are separate and independent supports for the beater-shaft and the tubular reel-supports at both ends of the machine, these supports being at such distance apart as to permit the introduction of mechanism between them, whereas in this invention the boxing which supports the beater-shaft and the tubular reel-support is one and the same, and is arranged between the spur-pinion G and the collar I. Another advantage is the facility with which long sleeve-bearings for the beater-shaft may be employed, it being apparent that they may be made to project to any desired length inside of the tubular supports D. Again, by reference to Fig. 5, it will be readily understood that the spur-pinion G and the stop at the other end of the machine serve not only to confine the sleeve-bearings in position in relation to the beater-shaft, but also prevent longitudinal movement of both the bearings and the shaft relative to the tubular supports. In all the constructions shown the sleeve-bearings are placed loosely within the tubular supports, and are held in position against lateral play only by the stops, which are affixed to the beater-shaft and engage with the outer ends of said sleeve bearings.

ART OF EXTRACTING GERMS FROM GROUND CEREALS AND MACHINE USED IN PRACTICING SAID ART.

Letters Patent No. 302,200, dated July 15, 1884, to Joseph Franklin Gent, Columbus, Indiana. The first part of this invention consists of the art of extracting germs from coarsely-ground or broken cereals by first steaming the whole grain, so as to soften and toughen the husk and germ, next coarsely grinding or breaking it, then separating the fine meal and husks from the granular portions and germs, and finally picking the germs from the granular portions by a mechanical picker. The second part consists of a machine for picking the germs from ground cereals, the machine being organized to operate with a rotating cylinder thick set with fine teeth made of steel wire or other suitable material, upon a passing film or sheet of the coarsely-ground or broken cereal, so that the teeth of the rotating cylinder will pick the softer germs from the flintier portions. In the drawings, fig. 1 is an end elevation of machine for extracting or picking germs from ground cereals. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section of the machine

in the plane of the axis of the picker-cylinder. In the machine the picker-cylinder A is composed of a solid wooden cylinder covered with leather, thick set with straight fine steel-wire teeth, as fine as the teeth of a carding-engine, projecting about one thirty-second to one-sixteenth of an inch apart. The cylinder is provided with a suitable shaft, journaled in vertically-adjustable boxes, seated on springs and adjusted by screws, as shown. This picker-cylinder is arranged just above and across the table-top *b* of a suitable frame or stand, B. An endless apron or belt, C, of cotton cloth, is stretched on cross-rollers *c c'*, so that its upper side or ply will move over the table *b* and under the picker-cylinder. The roller *c* is mounted in adjustable bearings, as shown, in order that the belt may be properly stretched. The picker-cylinder and belt C are driven to move at the same speed, in directions indicated by the arrows on fig. 1, from a counter-shaft D, through the intervention of chain gearing. The ground material is fed to the belt C from a hopper E, the discharge-orifice of which is about as long as the belt is wide, so that the ground material will be spread in a film or sheet on the moving feed-belt. The picker-cylinder should be so adjusted that its teeth will nearly touch the feed-belt, so as to enter the sheet of ground material fed along under the cylinder, the teeth pressing the hard flinty or starch particles into the soft belt and penetrating and carrying away the soft germs. After it has been picked by the rotating picker-cylinder, the cleansed ground material is discharged into a receiving-hopper, F, from which it may be spouted away. The germs extracted from the ground material are removed from the picker-cylinder by a fixed brush or comb, G, and fall thence into a conveyor, H, to be spouted away. Fig. 4 illustrates a modified form of the machine, a rotating cloth-covered feed-roller, I, having been substituted for the endless feed-belt.

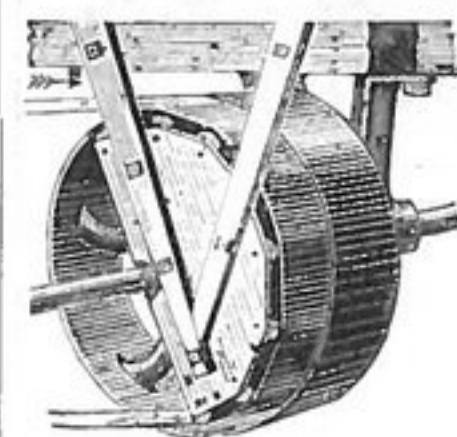
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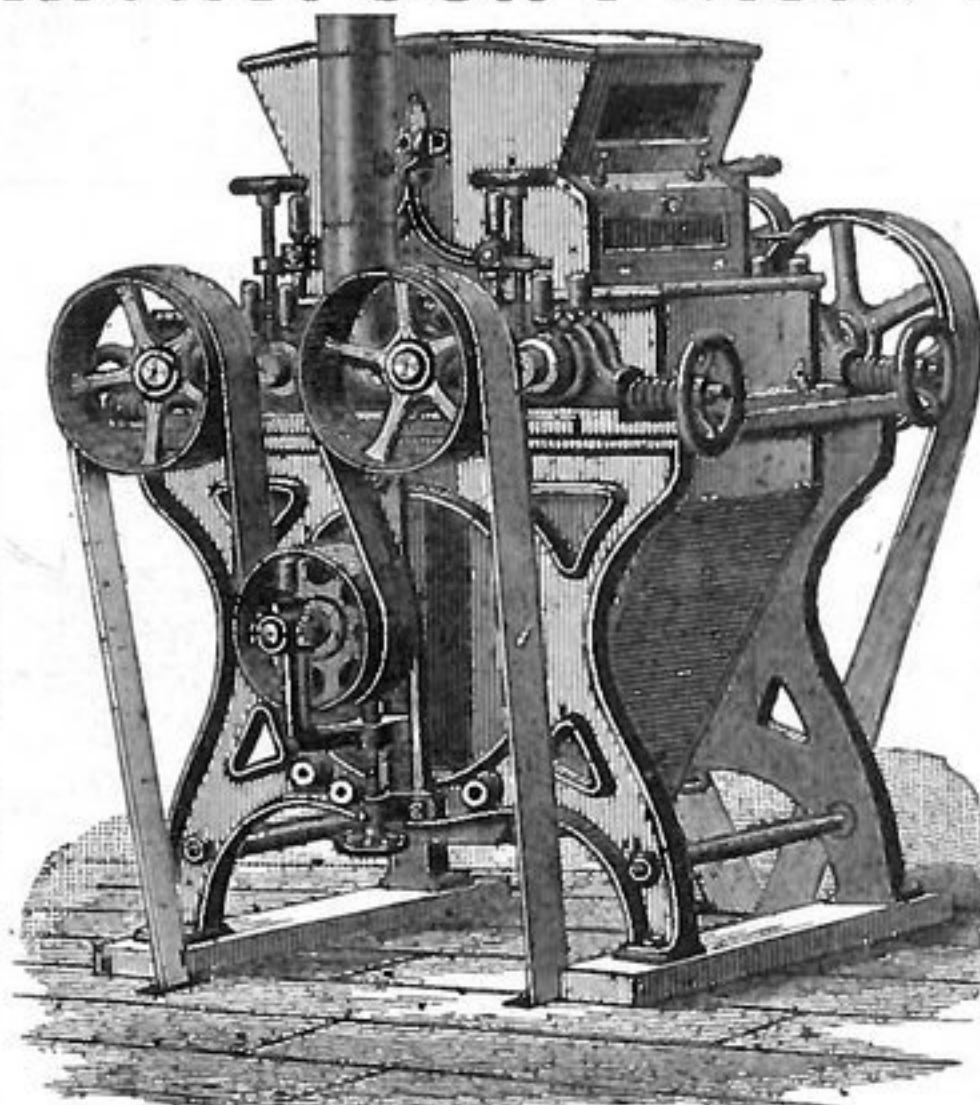
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MAKING CHANGES IN MACHINERY.

HOW easy a workman can recommend a change in the working parts of a machine, after everything has been adjusted and left in working order by those who were sent with the machinery from the works of the builder, and how easily he can make the attempt to correct the apparent disorder by making a few slight improvements, says *Cotton, Wool and Iron*. Machines have been delivered with full instructions for running them, and been returned for the reason that there were working parts that were left in doubt by some additional improvements. The engine lathe, with a dead center that could be easily removed by running back the spindle with the hand wheel, must be drilled for a pin wedge by the lathe man before he finds out that such a thing was not needed. Cutter heads with the driving spindle have been boxed up and shipped for the purpose of having a collar to guard against an end movement, where the builder had made provisions for this very difficulty, by turning V grooves in the bearings of the spindles.

Some unfamiliar part must be entirely remodeled so as to accord with the ancient idea with which the attendant is more familiar; and often costly attachments may be found laid aside which were intended for a purpose, the use of which no one was acquainted; and even machines have been fitted for different grades of material, by making some additional arrangement in the working of the machine, when all the while provisions were made for this very purpose. When the machinery from a reliable firm will not operate in accordance with the notions of the attendants, it would be proper to inform the parties whose interest lies in the proper working of the machine, and let them remove the difficulty, if any exists, and explain some of the mysteries of the one-sided catches that have been made use of, that the production may be benefited as well as the workmen, without a discredit to either.

NOBODY TO BLAME.

A week seldom passes, says the *American Machinist*, without readers of the daily papers meeting with records of accidents to those engaged in industrial operations, where it seems some one ought clearly to be responsible, yet the verdict generally reads, "No one to blame." Were the numerous misfortunes that result in injury to life and limb investigated by competent persons, it would be found that by far the greater part of them were brought about by gross carelessness, criminal ignorance, or recklessness. A manufacturer, or employer of labor, who knowingly puts men into danger through employing ignorant or incompetent foremen, ought to be held as strictly responsible for resulting damage, as is the man who knowingly employs a dangerous machine without taking precautions to prevent accident. The fact is, human life is held too cheap among us, and there are too few precautions taken to prevent workmen from receiving injury. In this respect we are away behind all other leading industrial nations, which seems to be a curious anomaly, since the workmen abroad have little direct influence in law-making. There was a spirit of stern justice about the ancient law which held a man responsible for goring done by his ox. We need a little more of that spirit introduced into the laws that regulate modern justice, and juries need to be inspired with the sentiment that it is right to hold the owner of any form of man-gorer to rigid account.

* * One of the provisions for exhibitors at the World's Centennial and Cotton Exposition at New Orleans is, "Exhibitors are entitled to insert, after their name or the name of the firm, the names of their assistants of every class and grade who may have taken part in the production of the goods exhibited." This is a wise and liberal provision, and we hope to see it generally acted upon by the establishments which send goods to that Exposition, remarks the *American Machinist*. It won't hurt the reputation of any manufacturer to give full credit to his foreman and workmen for the results achieved. Such credit is too often withheld. The ambitious young mechanic takes pride in his work, and proper recognition and encouragement should be given him. Let the New Orleans Exposition mark an advance in this respect.

* * In a recent interview, Mr. Edison expressed himself confident of the triumph of his incandescent light. It is now in use in thirteen cities of the United States, while plans for very many more are perfecting. He remarked, during the interview, that—"We want to get electricity from coal direct, without the intervention of boiler and engine. A good many people are at work on it. We don't see our way at all to it, but I will say it is surely possible. Zinc and other metal we can get into electricity at once, but the trouble is to do that with coal and carbon. If we could, we would get six horse power from one pound of coal, while with the boiler and steam engine we get only one horse power from three pounds of coal."

* * By actual account there are 12,862 "Maiden rocks" in the United States, exclusive of Idaho and Washington Territories, which are still to be heard from, the *Philadelphia Telegraph* tells us. These rocks are widely distributed, but there are no fewer than 650 in Michigan, 300 in Wisconsin, 180 in Iowa, 187 in Illinois, 250 in Indiana, and 567 in Vermont alone. A "Maiden rock" is always connected with the unvarying legend that a beautiful and gentle Indian maid, daughter of a noted chief, leaped from its apex into the yawning abyss below, rather than to wed with a barbarian brave, chosen by her stern parent, or to show herself false to that other redskin upon whom the affections of her heart were set.

* * Chicago has been testing the constitutionality of its anti-smoke ordinance, says *Iron*. There was much opposition to the law when it was passed, and predictions were plenty that the Supreme Court of the State would declare the measure unconstitutional. The decision of this court, however, recently given, sustains the law and the only refuge of those who may be inconvenienced by its going into effect, will be to employ hard coal, which is expensive; use gaseous fuel, which will require in many cases, considerable alteration of plant; or employ a smoke consumer that will be sufficiently effective to suit the authorities.

* * Chief engineer Isherwood, U. S. N., urges that a commission of properly qualified scientists be appointed to make, together with an ultimate analysis of the coals and of their volatile parts, an exhaustive set of experiments on the heat of combustion of the different coals we produce, and on those of the more important foreign coals with which our own must commercially compete in the near future. He points out that, rightly interpreted, these heats of combustion give the relative calorific powers of the coals, and, of course, their respective commercial values.

* * To evaporate a tenth of an inch of water on a square foot of ground requires a

power equal to one horse for half an hour, so that to condense one-tenth of an inch of water on a square mile would require more than 25,000,000 horses working for the same time. When we remember this, we have no difficulty in understanding how it is that hurricanes and typhoons can be produced by the amount of energy in the heat formed out of that small quantity of water in condensing from the vaporous into the liquid form.

* * There is a rumor that the Grand Trunk Railway are again contemplating a facilitation of traffic arrangements between Michigan and Canada, by tunneling the St. Clair river at a point about a mile and a half below Sarnia. It is reported that Mr. William Ward has been engaged to make the preliminary tests, and he proposes to experiment by drilling from a flat-boat anchored in the river, and if the rock is practical for tunneling it is said that the work will be commenced at an early date.

* * Messrs. J. Moxon & Co., Sheffield, England, have introduced an improved method of joining leather-belting, which dispenses with stitching and riveting overlapped bands, all that is required being merely to slit the ends of the bands into eight or ten "fingers" and dove-tail them on a long single rivet, or small bolt. This is readily done with a combination tool which has been made for the purpose, and the result has several advantages apart from the saving of time in stitching.

* * Owing to the reduction of canal tolls and other charges Canadian papers tell us that from the date of those reductions, the ocean vessels coming to Montreal, "have been fully provided with all the grain they could carry" and that "the total results of our imports this year will compare favorably with those of the Atlantic ports of the United States." The experimental reduction must be pronounced a success. One half the tolls still remain.

* * A competitive trial of windmills will take place at the Pennsylvania State Fair in Philadelphia from September 20. During stated twelve days nobody will be permitted to touch the machinery. All makers are invited and nobody will be charged for space. The mill that raises the most water will be accounted the best.

* * The French government has sent in for 50,000 square feet of space in the main building at the World's Exposition at New Orleans, and 50,000 square feet in Machinery hall. Viscount Paul d'Alzre, commissioner general to the exhibition from France, says that the exhibit from that country will be the finest ever made.

* * A man during a life time of 50 years, according to a paper recently read before the Academy of Sciences, Paris, sleeps away an aggregate of 6,000 days, works away the same period, eats away 2,000 days, walks away 800 days, is ill during 500 days, and amuses himself with the remainder of his half-century on earth.

* * On the Jeack farm, three miles from Yankton, Minn., we are told, coal has been struck at a depth of 240 feet. The drill is now a foot in the coal deposit and not through it. Four thinner veins were struck, the first ninety feet down. A shaft will be sunk as soon as possible.

* * Honigman's fireless locomotive, with the caustic soda condenser, has been used regularly, since March 31, for passenger traffic between Stolberg, near Aix la Chapelle, and Wurfelen. The locomotive when charged, it is found, will go for twelve hours.

* * If financial prosperity is any criterion, the German Millers' Association must be in a flourishing condition, as their treasurer reported the sum of almost \$12,000—accredited to the association on January 1st after the payment of all bills.

* * The United States produces 22 per cent. of all the pig iron made in the world, 27 per cent. of all the steel, and 24 per cent. of all the coal, and she consumes a still greater proportion of these products.

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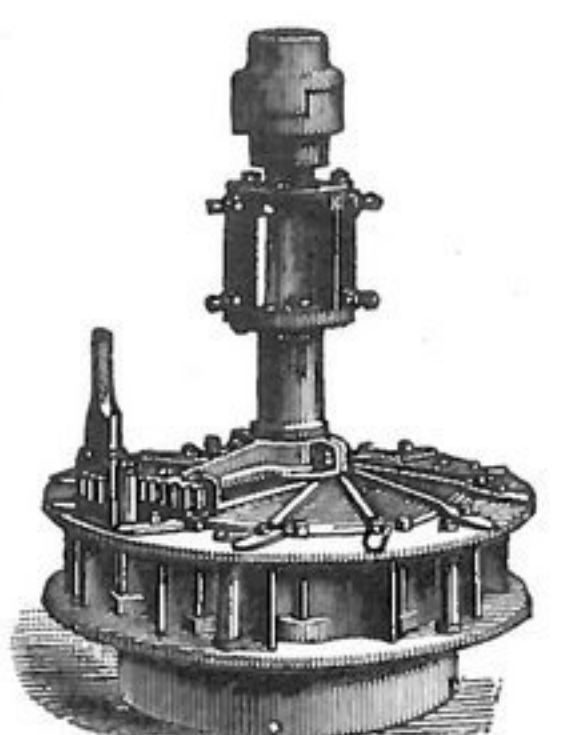
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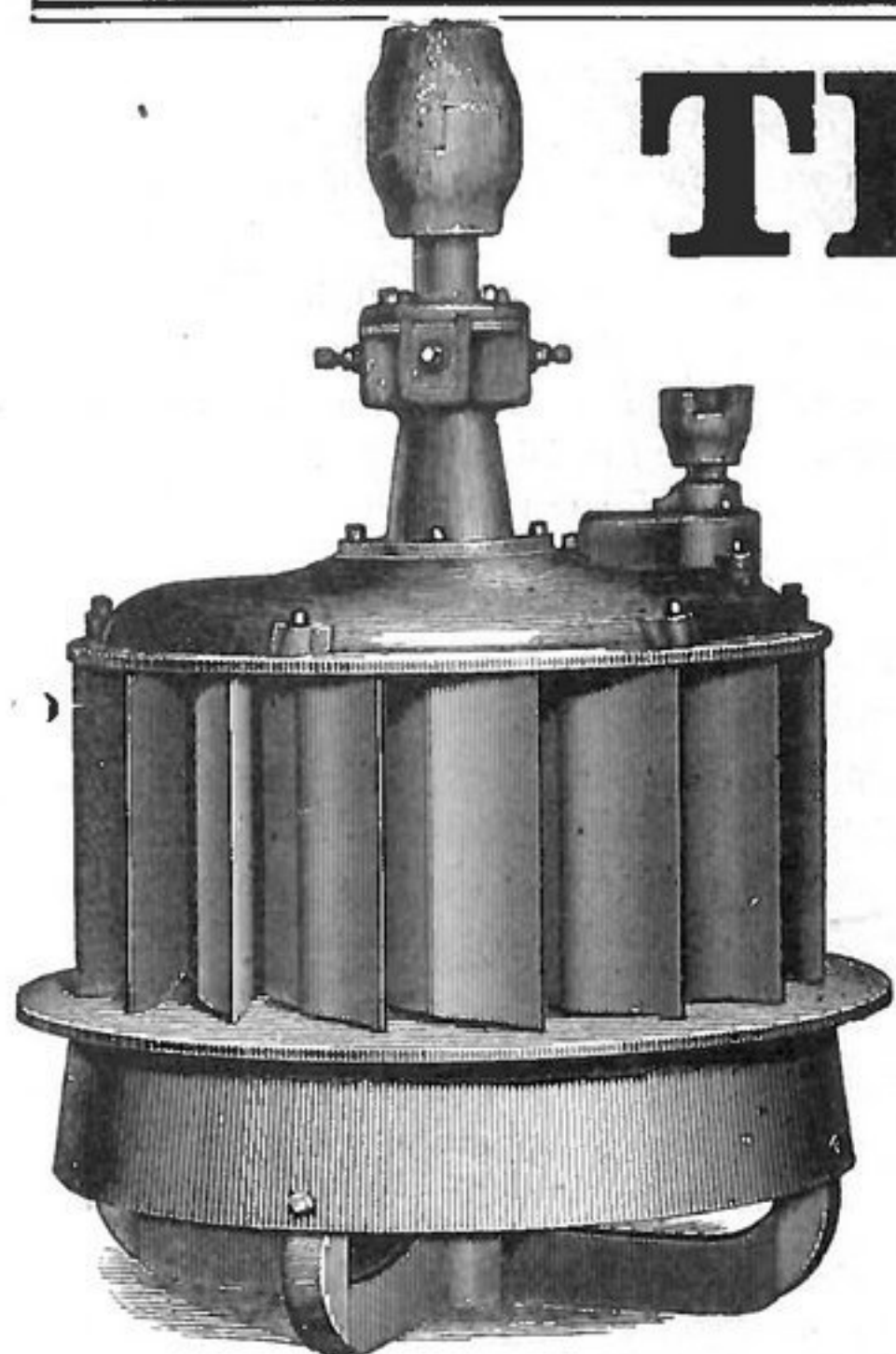
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25-inch,	17.90	68.62	.8584
30-inch,	11.65	52.54	.8676

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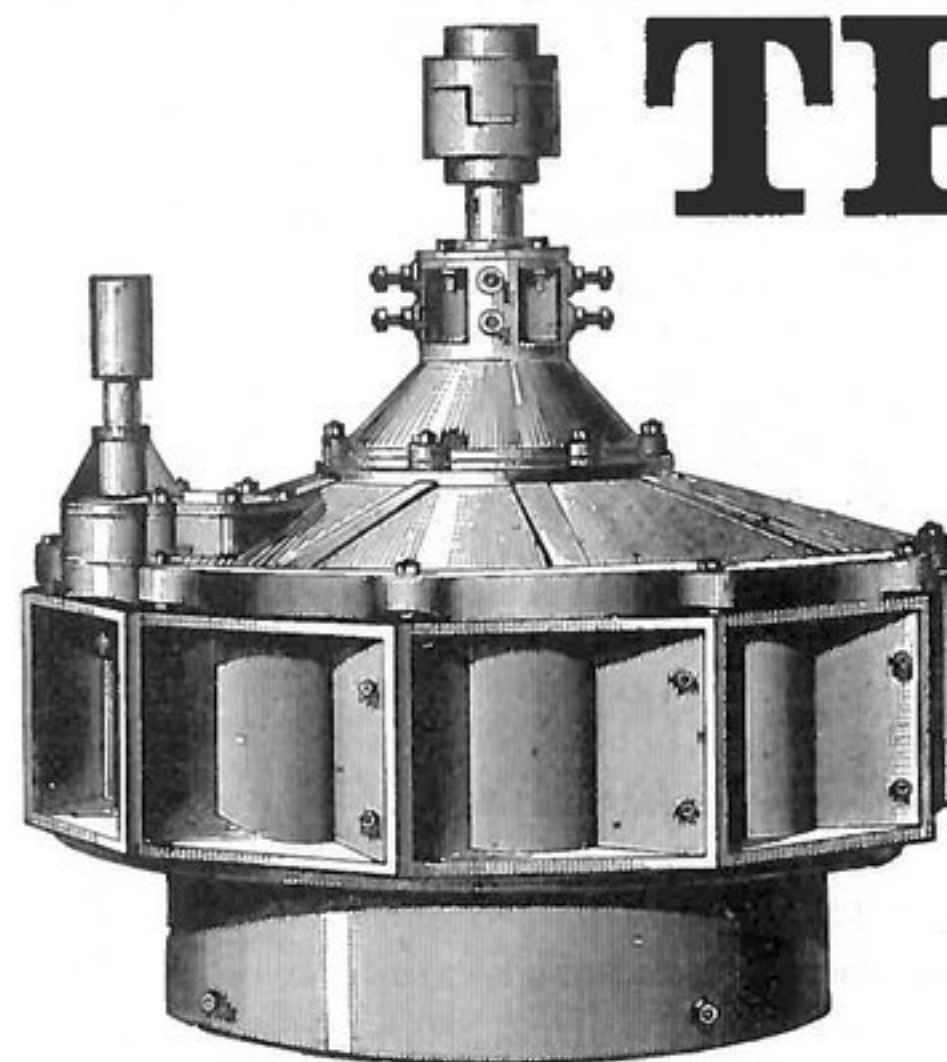
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24 Inch Wheel.....	.8206	.7910	.7700	.7008
24 Inch Wheel.....	.8078	.7578	.7275	.6796
30 Inch Wheel.....	.8000	.8011	.7814	.6850

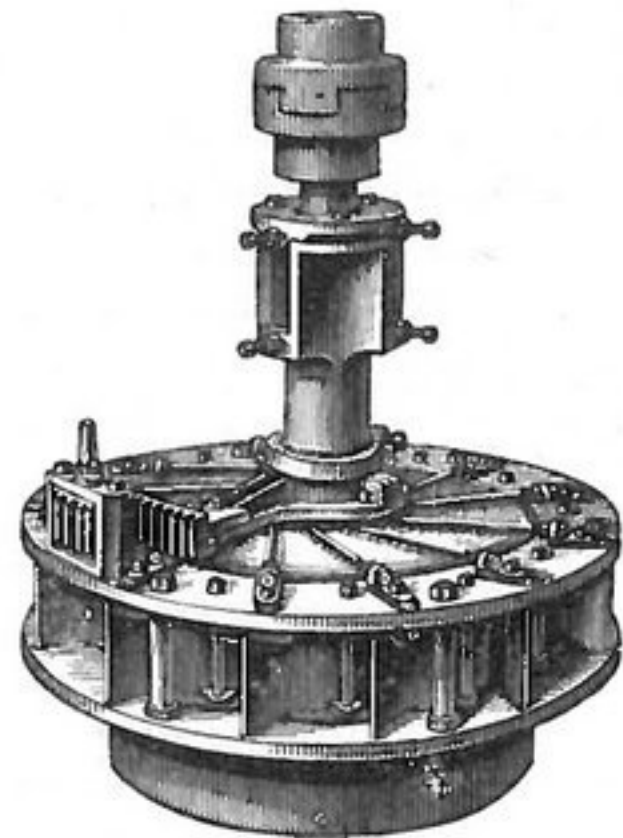
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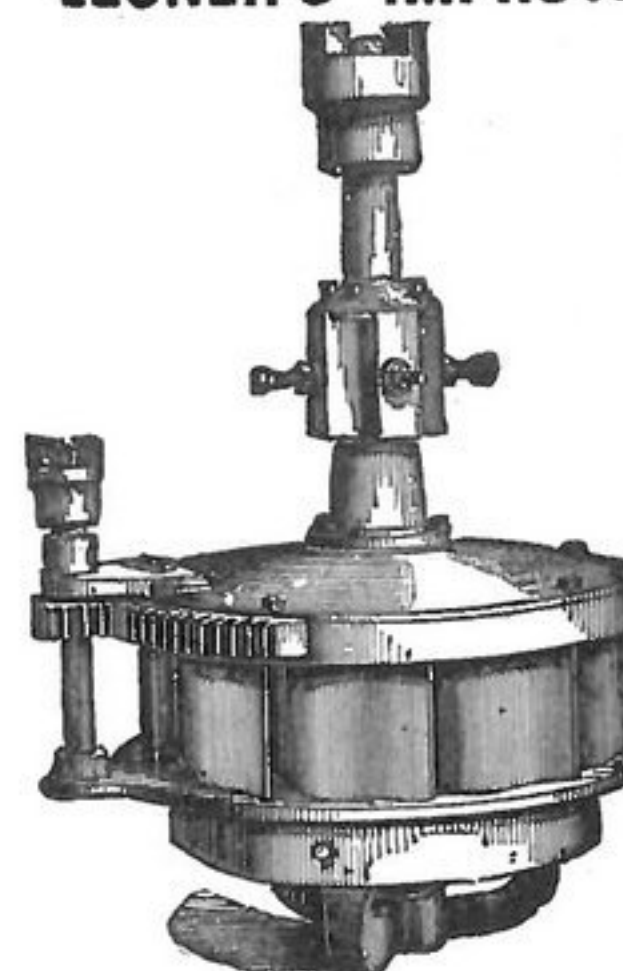


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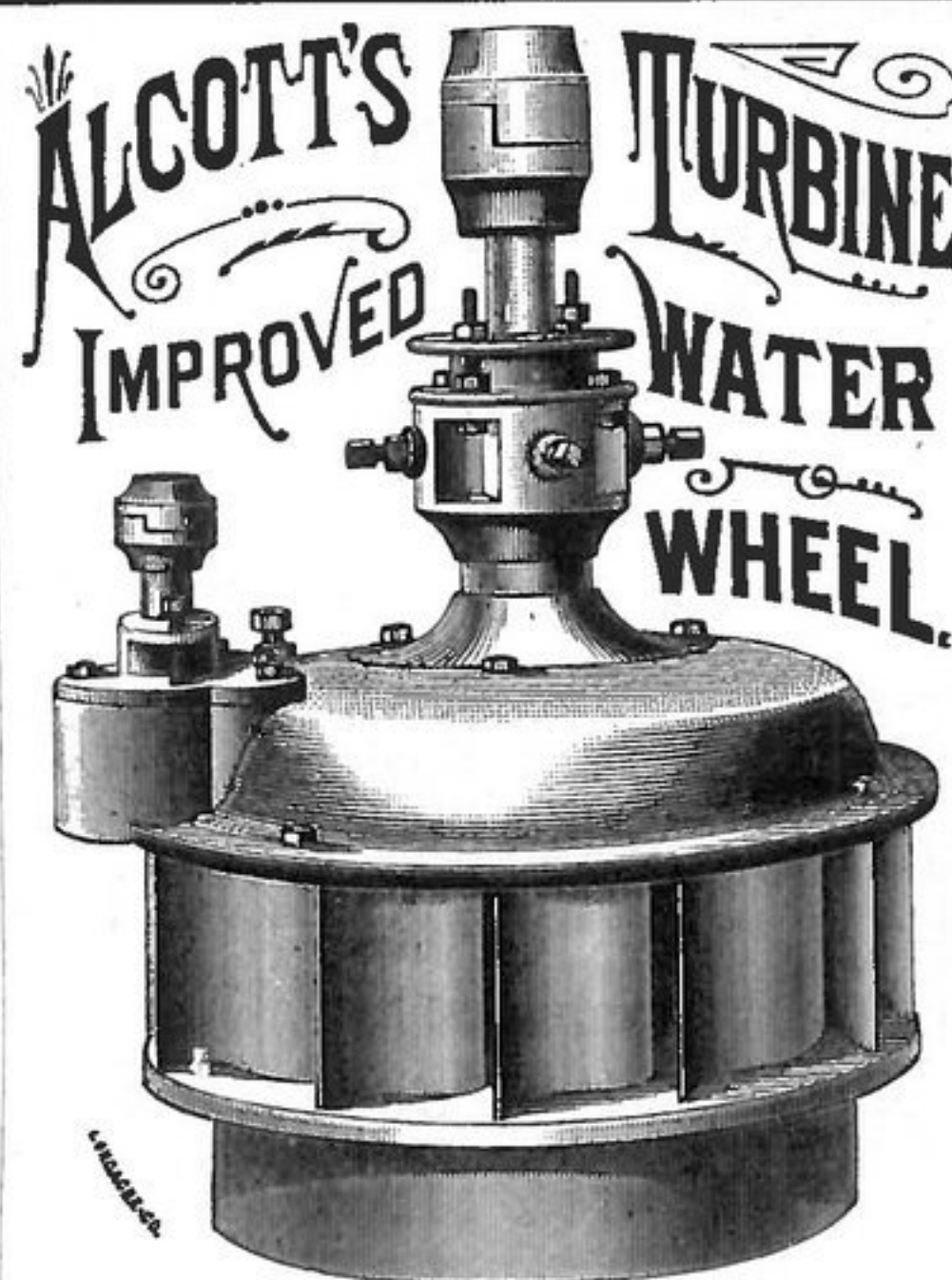
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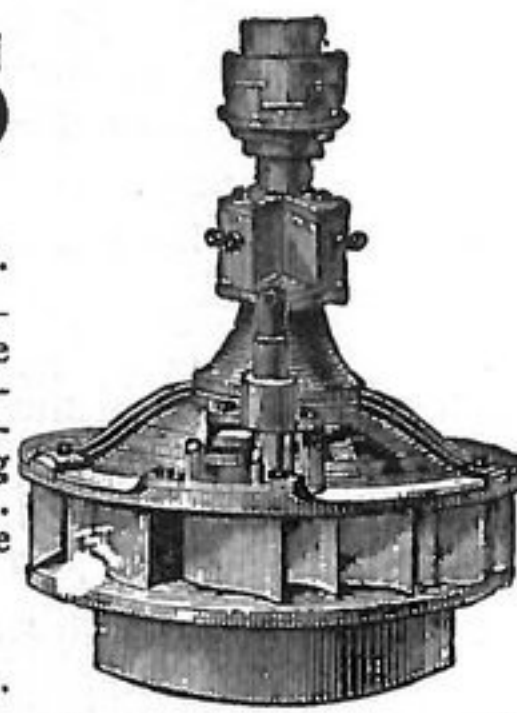
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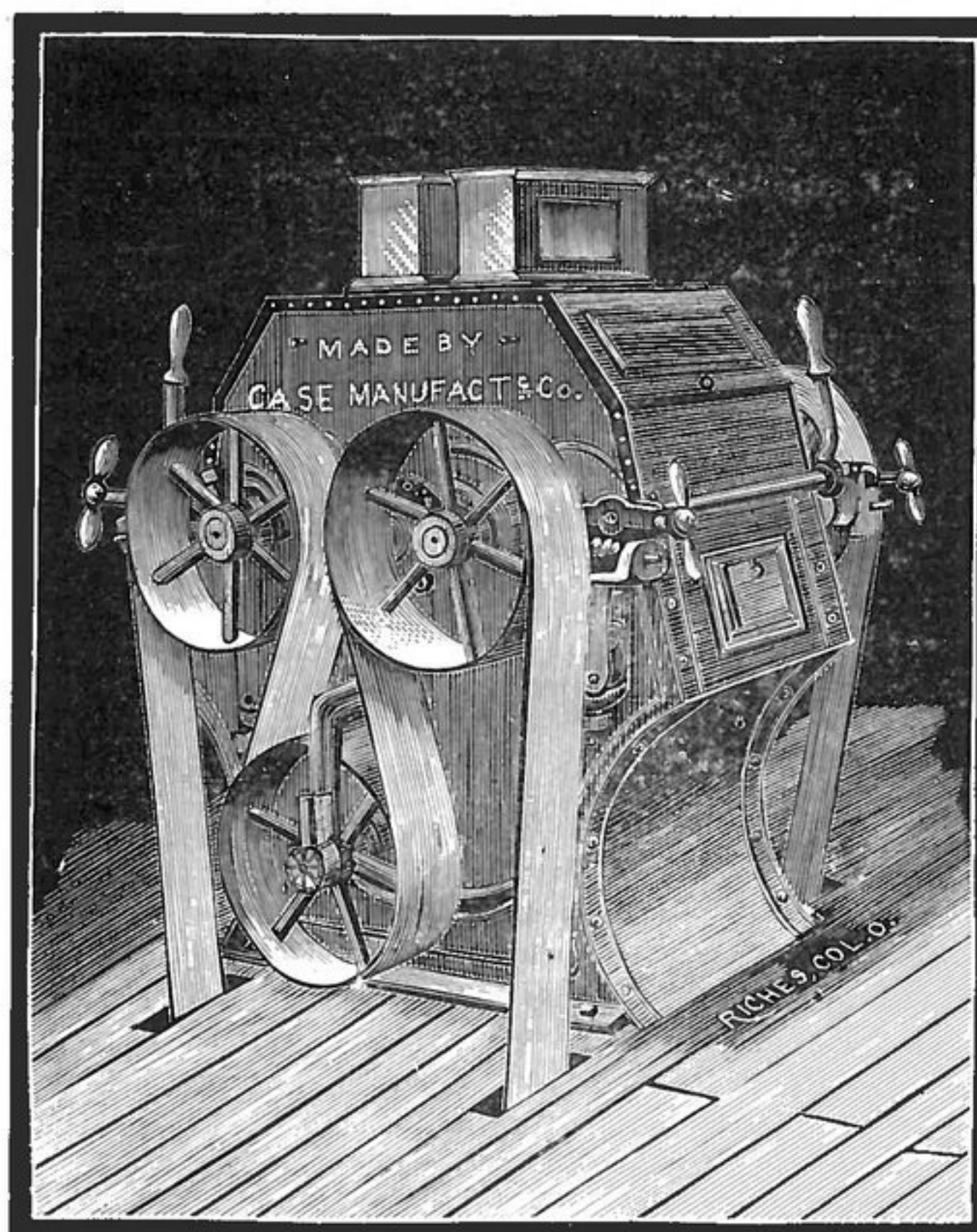
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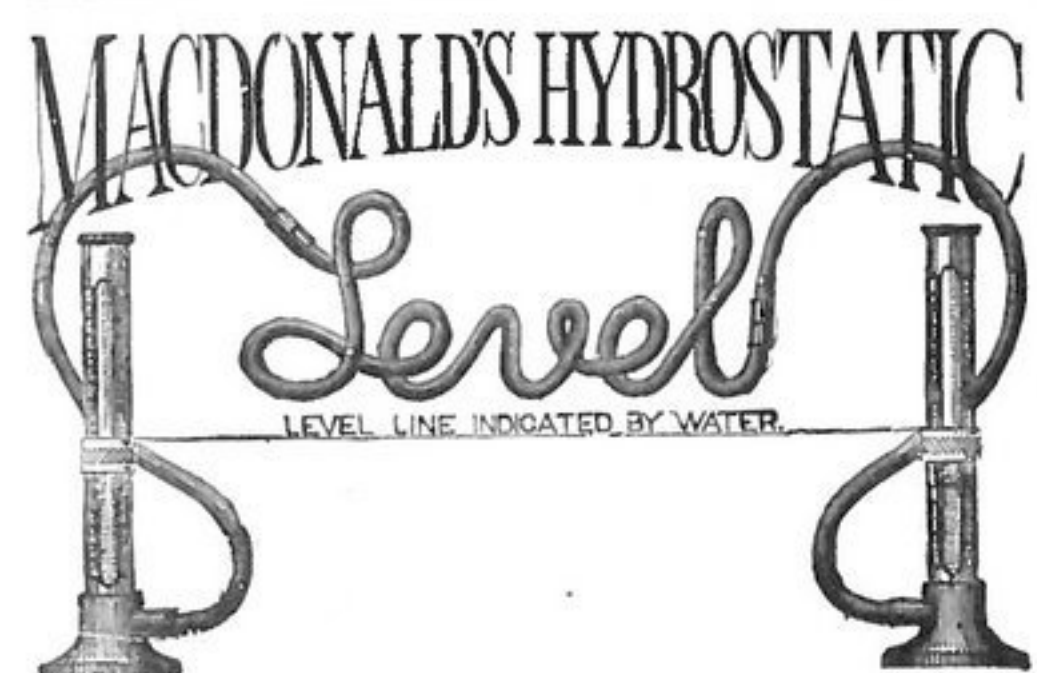
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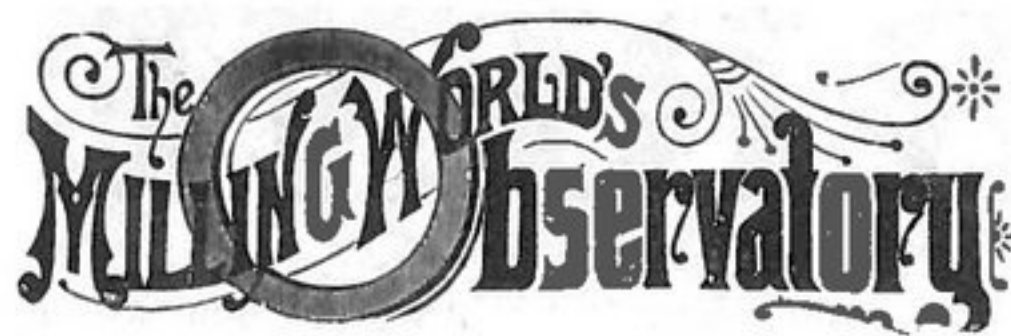
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OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

A VISIBLE IMPROVEMENT IN THE FLOUR TRADE—COMPARATIVELY BUSY AND HOPEFUL MILLERS—WHEAT VALUES STRONGER—BARREL PRICES ON THE DOWN GRADE STILL—THE WASHBURN WILL CASE—GOSSIP.

Strange as it may seem, we have at last an opportunity to report an improvement in the milling business. Being on a continuous descent down hill from almost the opening of the season, it would seem that matters had become their very worst, and there finally had to be a change. With trade reduced to such a low ebb, and continuing so so long, the reaction, when it did come, was sharp and quick, and may be all the more lasting for its slow coming. An active demand has sprung up for flour, both from the east and abroad, and much higher prices are ruling. Notwithstanding that freights from Chicago east have been put up about 17 cents per barrel, flour is bringing 10 to 15 cents, and perhaps over, above the old quotations and the advance in freights. Flour from old wheat seems to be the desideration which everybody is suddenly after, and the mills have opportunities to contract their product for some time ahead. But our millers are sanguine that there will be no surplus of old flour and are quite firm, and will not throw away the golden opportunity offered them. As a natural consequence, the improvement in the flour market has given an increased impetus to milling operations. Between eighteen and nineteen mills are running, and stronger too, than in the past. The output has been brought up to 100,000 barrels per week strong, and may soon go considerably beyond that figure. The Washburn mills keep ahead in the amount of flour made, Pillsbury & Co. of course coming next.

Wheat is in fair demand and shows a slight appreciation in values. The receipts keep up pretty well, during the past two weeks having amounted to about two-thirds as much as has been ground by the mills. The stock in store in the city now is about 1,700,000 bushels, and at St. Paul 140,000 bushels.

The receipts and shipments of Minneapolis is shown in the following:

FLOUR.		
Week ending	Receipts.	Shipments
	Bbls.	Bbls.
July 15,	625	78,976
July 22,	500	123,682
Total	1,125	202,658

WHEAT.		
Week ending	Receipts.	Shipments
	Bus.	Bus.
July 15,	333,000	46,500
July 22,	273,000	46,000
Total	606,000	92,500

The receipts and shipments at and from Minneapolis for the six months ending June 30, 1884, were as follows:

Received.		Shipped.	
Wheat, bu....	10,931,200	Flour, bbls....	2,206,572
Flour, bbls....	84,715	Wheat, bu....	1,341,760
Corn, bu....	350,400	Millstuff, tons	63,148
Oats, bu....	326,700	Corn, bu....	46,800
Barley, bu....	86,266	Oats, bu....	20,700
Rye, bu....	3,000	Barley, bu....	9,600
Millstuff, tons	4,134	Rye, bu....	None

The Minnesota Supreme Court has passed its opinion upon the Washburn will case, and sustains the will made by the late Gov. C. C. Washburn. This was in accordance with the decision rendered by the Wisconsin Supreme Court, and effectually settles the matter. The point in question was whether the widow, who is insane, should have anything further from the estate than good care and be comfortably provided for during her life, provision being made for this in the will, but nothing more. The daughters undertook to break the will, claiming that their mother was entitled to one-third of the estate and if they had succeeded, the mother's portion would undoubtedly have reverted to them, and perhaps defeated the carrying out of certain schemes laid out in the will. As it is now, all will be amply provided for, and the provisions of the will carried out to the letter. By those familiar with the facts, the action of the heirs in contesting the will is rather severely commented upon, as hardly becoming them.

The Minnetonka Mill is offered for rent. This mill is owned by the Minnetonka Mill Co., of which C. M. Loring and Loren Fletcher are the largest stock holders. They have become tired of running the mill, and want to give someone else

a chance at it now. Messrs. Fletcher & Loring are members of the firm of Cahill, Fletcher & Co., owners of the Galaxy mill.

Prices of barrels are yet on the down grade. This week all oak, ten-hoop barrels were reported to be offered at 35c. The competition between the shops here is so sharp that we see nothing to prevent prices going still lower, except that the miller thinks it best not to pay lower prices, fearing a reaction.

The Minneapolis mill has been shut down the past ten days, repairing a serious break to its water wheel. In times like the present, it does not come far from being aggravating to be forced to lay idle.

By the failure of the machinery firm of Dawson Bros. at Wilmington, Del., Dave Danby, their miller, who was a Minneapolis dusty, comes in for a loss of \$1,900.

George Chesbro, has gone to Brainerd, Minn., to take charge of the Schwartz mill, with which C. H. Douglas, a lumberman has become identified.

Shalto & Dennis have the contract to build the new mill of Hurlbut & Goff, at Superior, Wis. They put in Nordyke & Marmon machinery.

Wm. Miller, Jones' head miller in New York City, is in town, accompanied by Mr. Darling, Hecker's miller.

The Crown Roller Mill will be shut down in a short time to permit the deepening of its tail race.

A 600,000 bushel elevator is being erected in the Northern part of the city by Baker, Potter & Co. Wm. F. Gunn was in the city during last week, and J. Silas Leas comes up smiling this week.

C. M. Palmer, of the Northwestern Miller, arrived home from Europe on the 26 inst.

C. A. Pillsbury is in the east for a month, partly for business and partly for pleasure. Minneapolis, July 26. CABLE.

Notes from the Mills.

Loughry Bros., Monticello, Ind., will soon have in operation a Gray's noiseless belt roller mill.

D. M. Kehler started his East St. Louis mill on July 13, having increased the capacity 200 barrels.

The Case Mfg. Co., Columbus, O., have an order from the Waukegan Mill Co., Waukegan, Ill.

The Franklin Warehouse & Elevator Company, of Franklin, Tenn., are erecting a large wheat elevator.

Frank Bibernitz, Norman, Wis., has recently put in a porcelain roller mill in Gray's noiseless belt frame.

It is stated that the mills of California are at present capable of turning out 2,000,000 barrels of flour annually.

W. P. Hambaugh, Ringold, Tenn., has ordered two additional pairs of rolls from the Case Mfg. Co., Columbus, O.

W. Pollock & Co., Mexico, Mo., have bought of E. P. Allis & Co. six pairs Allis rolls in Gray's noiseless belt frames.

P. L. Terry & Co., of Roanoke, Va., are building a roller process flour mill with a capacity of 125 barrels a day.

Many fields of rye in Connecticut have been cut for fodder, the May frost having prevented possibility of heading.

A good steam flour and grist mill is wanted at Jacksboro, Tex. Robinson & West, of that place will give all information.

George and H. M. Louman, Kent, Pa., have placed their order with S. Morgan Smith, York, Pa., for a Success water wheel.

The Case Mfg. Co., Columbus, Ohio, have an order from Necedah Flour Mill Co., Necedah, Wis., for a No. 1 double purifier.

Memphis is building a flour mill with a capacity of 150 barrels a day and a grain elevator with a storage capacity of 55,000 bushels.

H. A. Hayden & Co., Jackson, Mich., have ordered a 20x42 Reynolds-Corliss engine of Edw. P. Allis & Co., of Milwaukee, Wis.

Edw. P. Allis & Co. are building a new 16x42 Reynolds' patent automatic cut-off engine for the coming Exposition at St. Louis, Mo.

The Case Mfg. Co., Columbus, Ohio, have an order from J. B. Ficklin, of Fredericksburg, Va., for a Case automatic feed for his porcelain rolls.

The Great Western Mfg. Co., of Leavenworth, Kansas, have purchased a Gray's noiseless belt roller mill for J. C. Mohrman & Co., Syracuse, Neb.

Two new elevators on the Little Falls & Dakota, at Westport and Cyrus, have been completed, and the machinery will soon be placed in position.

O. Bateman, Howardsville, Va., is improving his mill by putting in, among other machinery, a

Success water wheel, built by S. Morgan Smith, York, Pa.

W. R. Fitzgerald, Chatham, Va., is remodeling his grist mill, and has placed his order with S. Morgan Smith, of York, Pa., for machinery and water wheels.

Schott & Hess, York, Pa., have placed their order with S. Morgan Smith, of same place, for a new Success water wheel, and the machinery for their new mill.

Kindell & Stewart are putting a new 12x36 Reynolds-Corliss engine, purchased from Edw. P. Allis & Co., Milwaukee, Wis., in their factory at Denver, Col.

E. Kelly, Rutland, Vt., has put in a 24-inch Success water wheel, together with some machinery for the improvement of his mill, made by S. Morgan Smith, York, Pa.

Geo. Leggate, Centerville, Ill., is making some changes in his mill, and putting in two pair of rolls with patent automatic feed, from the Case Mfg. Co., Columbus, Ohio.

The Ypsilanti Machine Works, of Ypsilanti, Mich., have ordered from E. P. Allis & Co. eight pairs Allis rolls in Gray's noiseless belt frames, for L. M. Marshall, Perry, Mich.

Mr. B. F. Crabbes, Laurel, Md., is remodeling his large flouring mill, and has placed his order for shafting, gearing, and Success water wheels, with S. Morgan Smith, York, Pa.

Henry McCormick, manager of the Harrisburg chair works, at Harrisburg, Pa., is putting in a 72 inch No. 2 improved Success water wheel, built by S. Morgan Smith, of York, Pa.

W. P. Taylor & Bros., of Wiston, N. C., are building a new grist mill, and all the machinery, including a large Success water wheel, is being made by S. Morgan Smith, York, Pa.

John J. Mullinix, Florence, Md., has placed his order with S. Morgan Smith, York, Pa., for a Success water wheel, and all the machinery required for a first class custom grist mill.

H. Resener & Co., Cheshire, Ohio, have placed their order with E. P. Allis & Co. for eight pairs Allis rolls in Gray's noiseless belt frames, with necessary machinery for a complete outfit.

The Case Mfg. Co., Columbus, O., have an order from Barnard & Leas, Moline, Ill., for one 9x12 reducer and scalper, making three separations, to be shipped Kuhn & Roush, Manning, Iowa.

Complaint is being made that the new wheat arriving at St. Louis is in a damp condition, and the elevator men advise farmers to stack their wheat rather than accept the present low prices for it.

A terrific fire was raging on July 22 in the southern part of San Joaquin county, Cal. Thousands of acres of grain were destroyed. The farmers, after a well organized struggle, checked the flames.

Capitalists contemplate the erection of a flour mill at Qu'Appelle, Man., capable of turning out 150 barrels per day. They intend asking a bonus of \$5,000 from the municipality in furtherance of the scheme.

H. Chesbrough & Bro., Emerson, Mich., visited Milwaukee recently and while there placed an order with Edw. P. Allis & Co., Reliance Works, for a 26x42 Reynolds' patent automatic cut-off engine and a complete saw mill outfit.

Work on the new elevators at Duluth is progressing rapidly. At elevator D the timbers for the first story are already in position. The foundation for elevator E is nearly completed and tomorrow a portion of the superstructure will be erected.

W. G. Hogan, Morgantown, N. C., has placed his order with S. Morgan Smith, York, Pa., for a No. 2 Improved Success water wheel, and a large lot of pulleys, shafting, and gearing for a new mill. This is Mr. Hogan's second Success wheel from the same source.

On July 24, Greenup, Ill., was visited by a disastrous conflagration. The Harvest Home Mill, a large structure owned by C. J. Jones, was totally destroyed. Loss, \$13,000; insurance, \$6,500. Four other buildings were burned. This is a severe blow to the business interests of the community.

Edw. P. Allis & Co., of the Reliance Works, Milwaukee, Wis., have the order for a three million, and also a million and a half gallon pumping engine, for the city of St. Paul, Minn., and the work is well under way. The engines will be Reynolds' compound condensing engines, and will be set up ready for work by Oct. 15, 1884.

A Milwaukee capitalist will make a novel experiment at Aberdeen, Dak., this fall. An artesian well has just been completed that flows 3,000 gallons a minute. Another well will be made

large enough to run a mill capable of making 200 barrels of flour a day, and the experiment of artesian well power as a perpetual motor will be made.

E. Corbett, of Sandusky, Ohio, has taken the contract of W. H. Tenney, of Georgetown, D. C., for a complete gradual reduction mill. The machinery will all be furnished by the Case Mfg. Co., of Columbus, Ohio; ten pairs of Case's rolls in connection with their purifiers, centrifugals, scalp-ers, etc. Mr. Corbett will place and superintend the work, and will no doubt give Mr. Tenney a good mill.

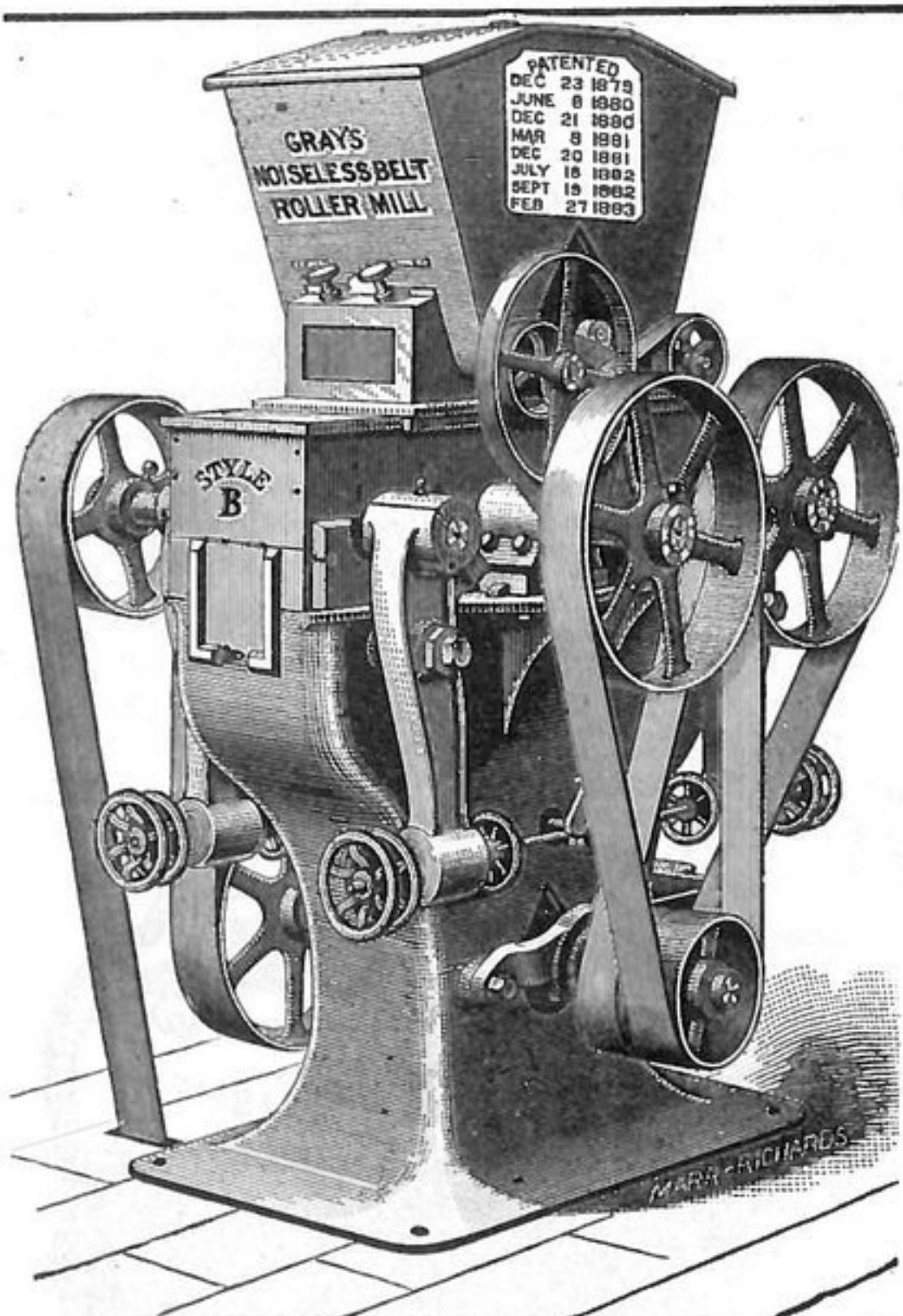
The firm of E. Lathburn & Co., grain men of Philadelphia, suspended payment July 22, and is negotiating with its creditors to pay 50 per cent in settlement. In February the firm's warehouse was burned out, involving a loss of \$60,000, on which there was \$28,000 insurance. Within a week the firm discovered that its trusted clerk, Samuel Entwistle, had robbed it of \$5,000. Entwistle can not be found.

The weather for the next eight weeks will be of supreme importance to the agricultural interests of the west. The corn crop has now reached a point from which it is possible to predict an immense yield, probably 2,000,000,000 bushels, or the largest crop on record, if the weather is favorable. Indications point to a wheat crop ranging from 450,000,000 to 550,000,000 bushels. The inside figures would fall below the average. Even this, however, would yield a considerable surplus. But the best judges estimate the crop at from 500,000,000 to 550,000,000 bushels. The present outlook is that we shall have cheap food for some time to come at least.

In a few weeks hence the result will be known throughout Canada, and the harvest of 1884 will have arrived. What the harvest will be can be pretty fairly judged now, and the returns from all parts of Manitoba furnished to the department of agriculture show that bright anticipations are entertained in regard to it. Wheat is reported in excellent condition throughout every district in the province and the yield will be up to the average. The acreage sown is vastly increased, and there is no reason to doubt that the estimate of 9,500,000 bushels being available for export this year will be fully realized. Oats have not been doing as well as wheat, but the recent rains have made a great improvement in the crop, while barley will undoubtedly be up to the average. A most abundant crop of potatoes is promised, while field roots, from various causes, are below the average. The yield of hay is very large, and haying may be said to have commenced already. All indications point to the conclusion that the harvest of 1884 will be the largest on record in the Canadian northwest.

The annual report of the Commissioner of Statistics gives some interesting facts regarding the changes taking place in Minnesota agriculture. The change is a favorable one from a single crop to diversified products. In 1881 the total area devoted to wheat culture was 2,884,160 acres; 1882 it had decreased to 2,329,969, notwithstanding the fact that the area under cultivation had increased by more than 436,000 acres. The gradual abandoning of the old system is apparent from the fact that in 1878 the percentage of the total area sown in wheat was 68.98; in 1879 it was 68.30; in 1880, 66.59; in 1881, 62.49, and in 1882, 53.35, or only a trifle over one-half of the cultivated area. At the same time the acreage in oats, barley and corn has correspondingly increased from 24.89 per cent. in 1878 to 37.89 in 1882. The history of Minnesota is that of other western states. In the beginning, wheat is the easiest crop to raise. As the country grows older and fills up, and the farmers get means, they see the danger of relying on a single crop, increase their cattle, and so, gradually get in the better way.

The creditors of the Golden Age Flour Mills held a meeting at San Francisco on the 10th inst. Upon motion of Thomas Brown, cashier of the Bank of California, a committee of five was appointed to examine the books and report at a subsequent meeting. The total amount of claims represented was \$58,000, the Bank of California holding the largest. The French Savings Bank does not appear in this list of creditors, as its claim for \$18,500 is secured by a mortgage on the mill bearing date of June 14 last. The failure was due entirely to the stringency of the money market, as the mills were doing a good business, yet it was found impossible to secure the ready cash on account of the demand for money in the East. The company has assets \$9,000 in cash, and the mill, stock, book accounts, &c., are estimated at from \$120,000 to \$130,000. The creditors agreed to abide by the report of their committee. Mr. Campbell stated that he could have gone on as things were for some time longer, but preferred not to do so. He expects to resume operations at an early day and pay dollar for dollar of his indebtedness.



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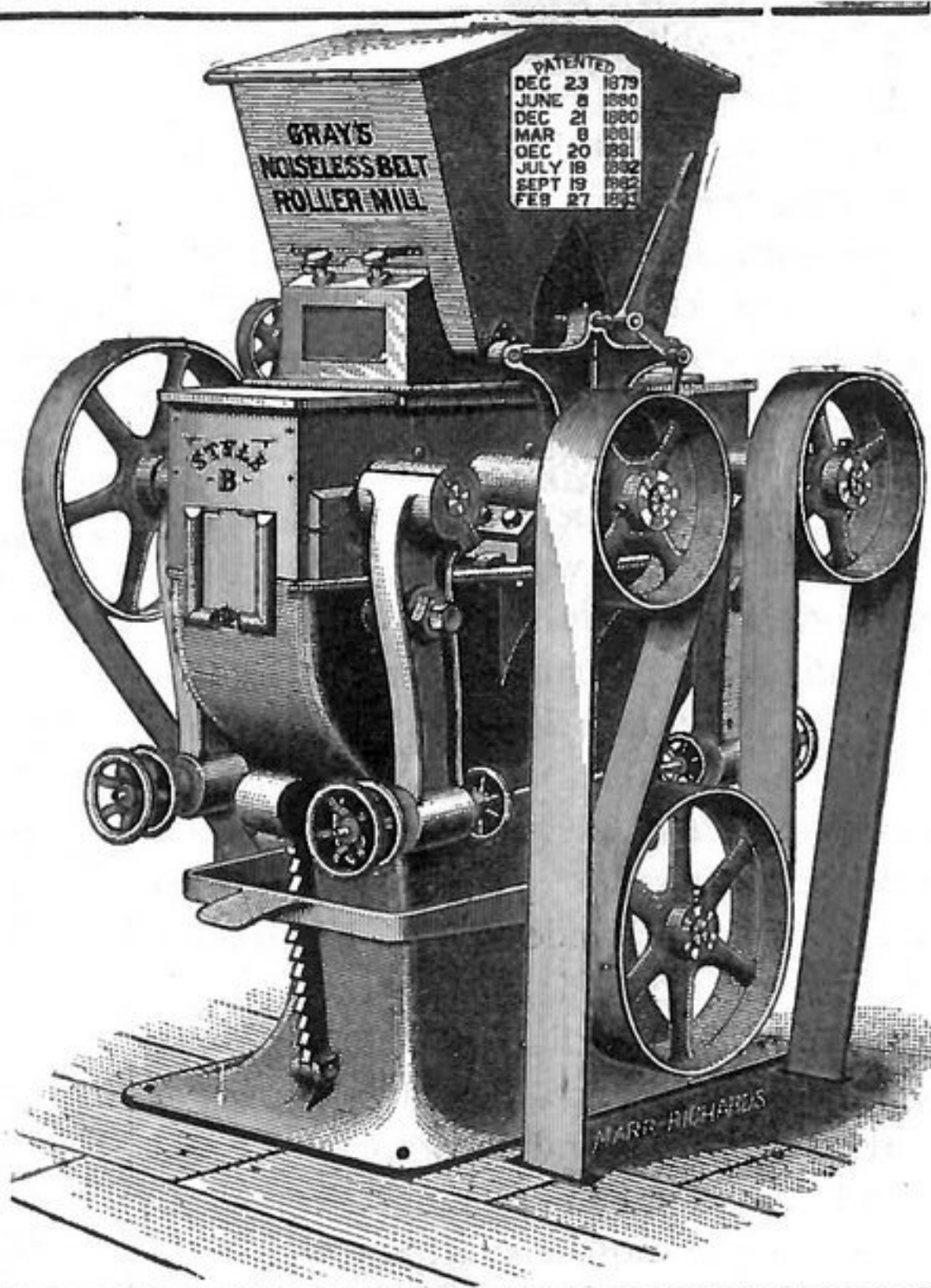
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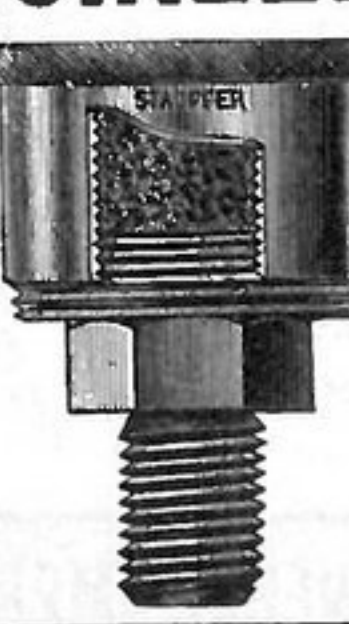




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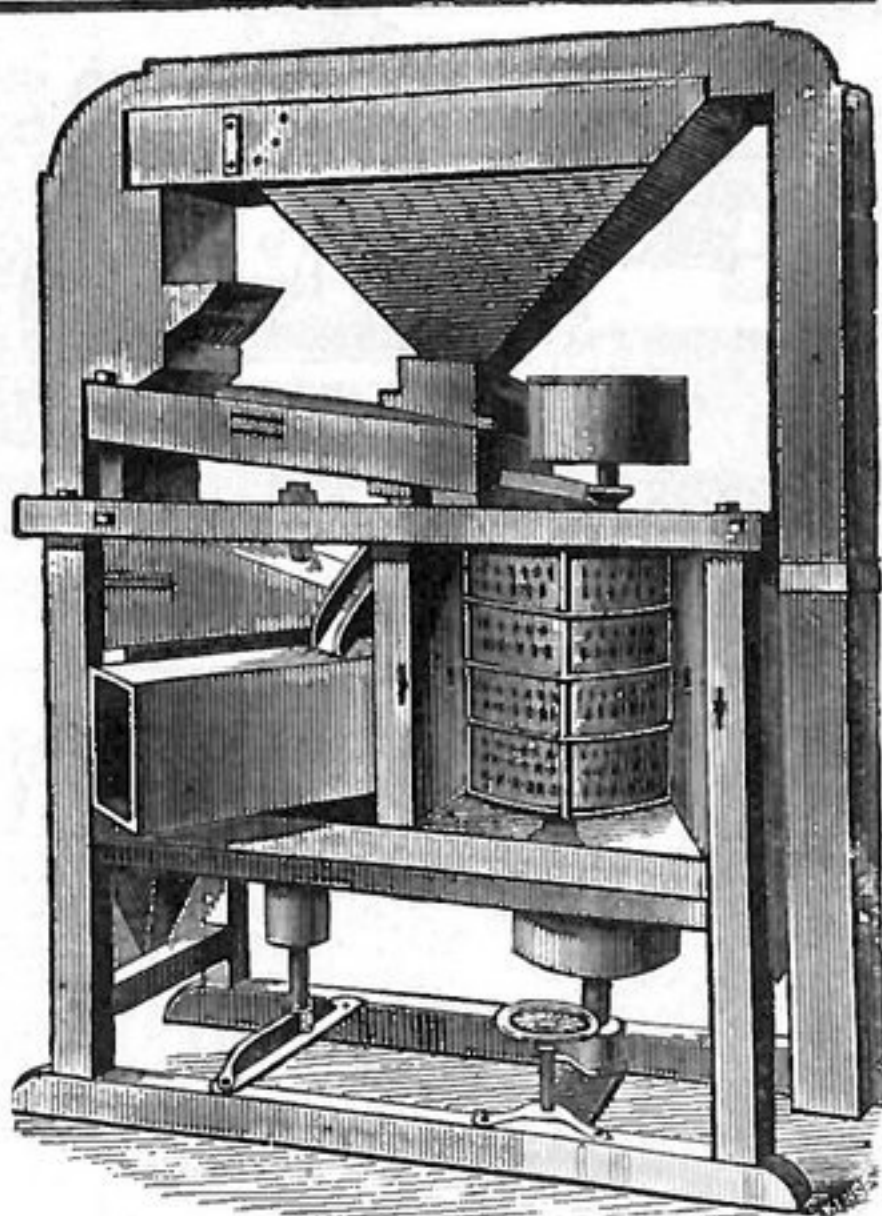
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It will clean, rub and separate wheat, and take out the rat balls, black steek seeds, joints of straws, cockle and other impurities. It will also rub off more fuzzy ends and dust from the creases of the berries, by rubbing the wheat together as it passes up between the rubbers, so each berry must get rubbed, scoured and polished alike. It will do all of this work better and last longer than any other machine of the kind. All this we guarantee. It will also clean barley and rye.

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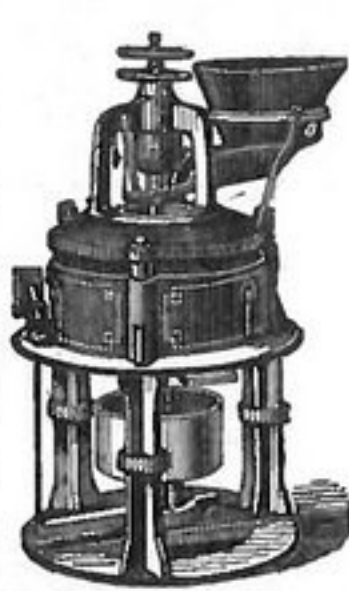
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**PURE, WHITE
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The only reliable, practical
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THE POSITIVE ADJUSTMENT
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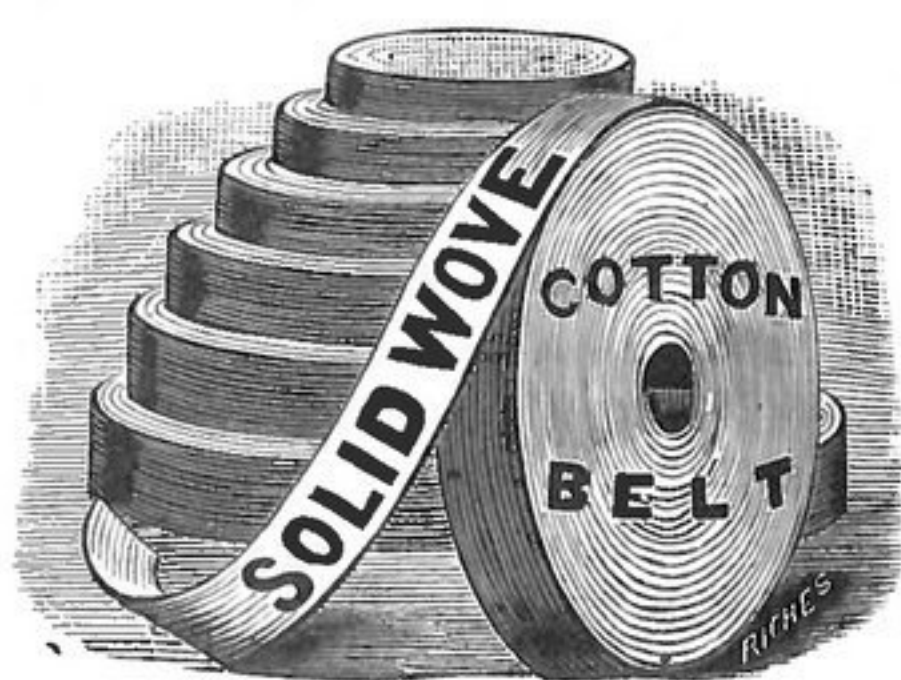
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Grinds Cool, Self-Oiling, Great
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*Simplicity and Durability
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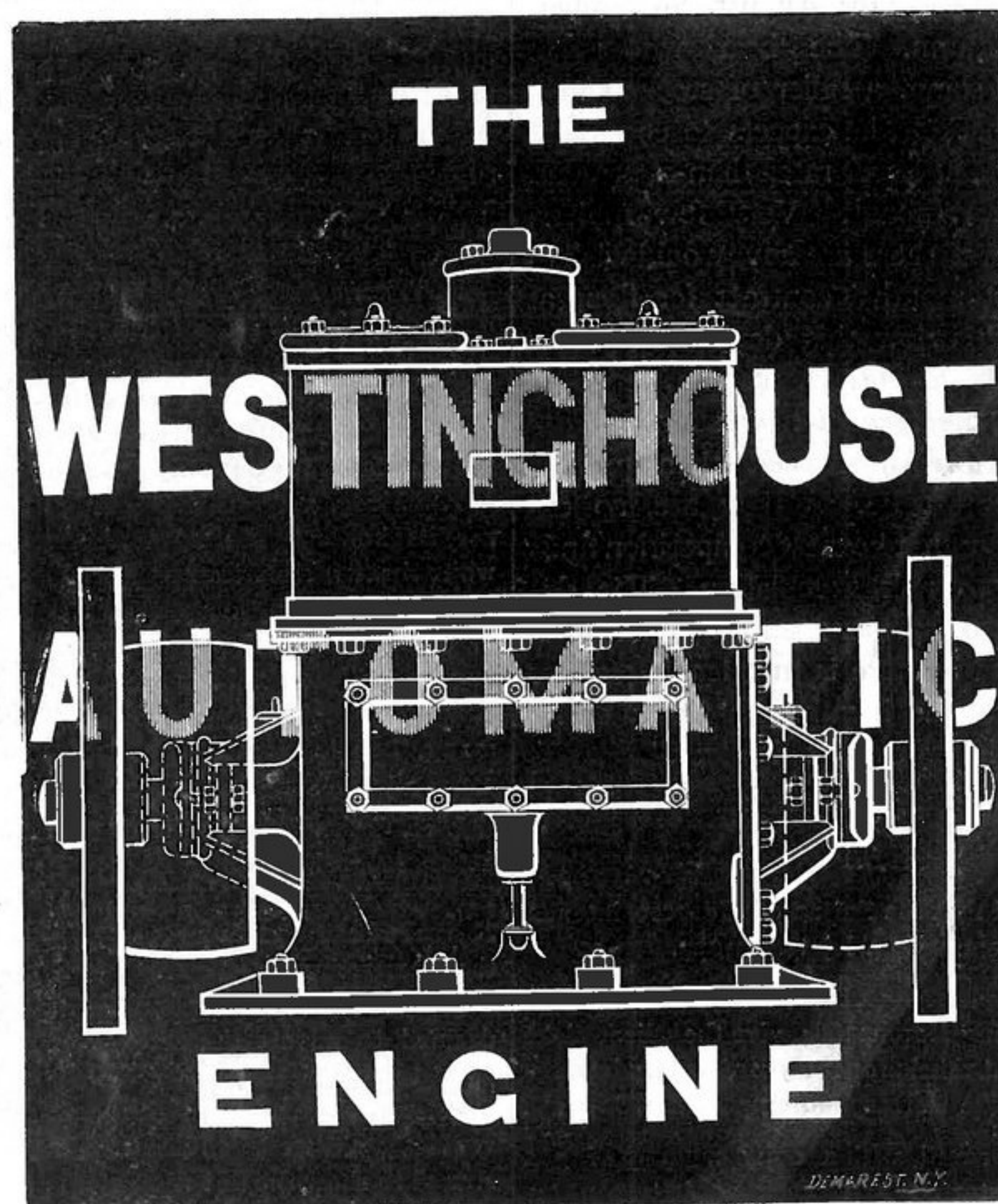
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And Re-corrugated to order. Porcelain rolls re-dressed. Our Machinery for this purpose is very accurate. Can do work promptly.

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BREADSTUFFS ABROAD.

THE cabled review of the British breadstuffs outlook this week to *Bradstreet's*, notes that the weather of the preceding week was showery, with lower temperature, though there was much sunshine. The early wheats are reported to have been considerably storm beaten, but the late wheats, though thin, were benefitted by the rain. The crop is said, by the *Mark Lane Express*, to be equal to an average. The off-coast trade was without animation, and prices were practically unchanged. Regarding British stocks, it is stated that "London wheat and flour stocks are nearly 150,000 quarters (or about 1,200,000 bushels) less than at this period last year, so our enormous stocks on January 1, have got rapidly absorbed indeed." The imports into France are said to be increasing, and prices of wheat and flour there have slightly advanced. Austrian and Hungarian wheat markets are firm, and it is generally admitted that material damage has been done to the crops in those countries. The New Zealand surplus of wheat is given at 4,000,000 bushels, but not much is expected in the United Kingdom at the present low prices. The London *Miller* says: "We hear of no 'bears' for August, September, or later autumn. The 'bear' who is, in commercial slang, a seller of stock which, by falling markets, he expects to command in the future, at lower rates than at present, is nowhere rampant. Very few millers, indeed, even if there are any, would wish to accept a six months' contract for flour at 1s. per sack below this day's quotations. If this view is correct on the verge of harvest, in the face of new supplies from home and foreign sources, then present currencies must be, as they are, so exceedingly low that keenest competition finds no reason to risk speculation. The deliveries from farmers about equal local demand, and if there is any leaning either way, millers find it rather hard than easier to buy good samples at old prices."

NOTES.

It is stated that the Sultan of Morocco intends to export wheat and barley to Europe.

The agricultural statistics for Victoria for the year ending March, 1884, give the wheat yield at 15,499,143 bushels for the year, as against 8,751,454 for the corresponding period 1882-83.

A new flour mill, with a daily capacity of 500 sacks, was started last week at Antwerp, on Seck Bro.'s system. This mill belongs to the *Campagne Fraucise des Moulins a Vapeur d'Anvers*, which has other mills on the Continent. We shall shortly be able to give a description of this new concern.

A fire, involving damage estimated at £10,000, broke out a few weeks ago at a Hull seed crushing mills, owned by Messrs. Joy & Sons, and tenanted by Messrs. Stuart & Gergson. The mills were stored with large quantities of rapeseed, cottonseed, and linseed. The origin of the fire is set down to spontaneous combustion.

The question of an extension of the railroad system in South Africa is again being agitated. Though Cape Colony has long been settled, the railroads into the interior make very slow progress. While in America railroads are thrown in every direction, the Cape seems satisfied with the team drawn by the ancient and historic mule.

According to the *Bristol Times* the first cargo of Persian wheat to arrive in Bristol was shipped in a large steamer named the *Panama*, and was received by Messrs. Roberts and Henry Adams of that city on Wednesday, June 2. The cargo, which was loaded at Bussorah in the Persian Gulf, consisted of 10,000 qrs. of barley in bulk, and 2,000 qrs. of wheat in bags.

Cablegrams announce that the Russian Government has decided to impose an import duty

upon agricultural machinery. This may be bad for the foreign manufacturers, but it is much worse for the Russian farmer. The immediate consequence will be to increase the cost of reaping the harvest in that country, thereby handicapping still further the unfortunate producer in his contest with other countries in the markets of Europe.

Mr. H. Simon, of Manchester, England, has obtained the order from Mr. Seth Taylor, of London, for a large complete roller plant for his Waterloo mill. This is surely a sign of the times, seeing that about two years ago Mr. Taylor built his new St. Savior's mill, on the stone system, in doing which he was credited, doubtless quite gratuitously, with having furnished a very strong argument to the millstone champions of that day. Mr. Simon has also been entrusted with the reconstruction on his roller system, of a very large mill in Birmingham.

Consul Baker in his last report regarding the trade of Buenos Ayres with the United States, says: "During the last year there has been quite a business done in American windmills. They are admirably suited for the production of power on the pampas, and, when once their advantages for pumping water, grinding corn, etc., are fully understood, I have no doubt they will be seen dotting the country in all directions. During portions of the year, owing to drouth, it becomes absolutely necessary to dig wells for the supply of water to the flocks and herds; and these windmills are the most serviceable contrivances the estancieros can procure for the purpose."

The husks of maize, or Indian corn, after the grain has been extracted, serve only for manure, or, in some cases, as fuel for portable engines for agricultural purposes. But they contain starch, albumen, and other substances capable of being turned to account, and afford an alcohol which is at least equal to potato spirit, leaving a pulp suitable for the food of various animals. Herr Holl, of Worms, has invented a process for utilizing these husks, by which he exposes the husks for an hour or an hour and a half to the action of steam, at a pressure of 35 to 45 lb. per square inch, in order to reduce them to powder, and thus open the starch cells, when distillation is proceeded with in the ordinary manner.

If *L'Etoile Belge* is an authority, the Government of Germany has authorized the introduction and sale of Russian petroleum throughout the empire, official analysis made under the supervision of a special commission having shown that the Russian oil is not only equal in quality to that of American, but that it is even less dangerous in use, its boiling point being above 293 degrees, while that of American oil is 248 degrees. The journal named says: "The decision of the German government, then, appears to us to be a good augury, and we shall soon see Russian petroleum alongside the American article, not only in Germany, but throughout Europe. Public safety cannot but be the gainer thereby."

J. H. Carter has just obtained the contract for a complete roller mill plant on his system for the Prouvy Mills, at Prouvy, France, belonging to the *Societe des Moulins de Prouvy*. At a meeting of the directors in Paris, recently, Mr. Smyth (Ross) T. Smyth & Co., Liverpool) in the chair, it was decided to entrust the erection of a large roller plant to Mr. Carter. The Mills are one of the finest establishments in Europe, and most conveniently situated. This is a pretty "heavy straw" to show the direction of the wind in milling matters in France, where hitherto progress, if French millers will allow us to say so, has been slow in these things says the *Millers' Gazette*. Van Gelder & Apsimon, of Liverpool, have, we believe, obtained the contract for a complete system of wheat cleaning for the Prouvy Mills.

Owing to adequate importations and to liberal supplies of produce afloat, together with the fineness of the weather, the wheat trade has been very quiet, but without material change in prices, writes the London correspondent of the *Financial Chronicle*. Millers are operating cautiously, and are only supplying actual wants. They pursue that policy because in a few week's time they expect to have offered to them a selection of excellent wheat which they hope to purchase on very moderate terms. The wheat crop in the southern counties of England is ripening rapidly, but the rain which is now falling in the London district, and which we are officially informed is not likely to be protractedly heavy, will be calculated to check an advance to a hasty maturity, and will not only benefit wheat, but will also be of great benefit to the later-sown crops. Not only is there no reason for despondency, but on the contrary a hopeful view should be taken of the future.

The Paris correspondent of a British trade journal writes that business in France is getting "worse than ever," and that exports are suffering

most. During the first five months of 1884 only 764,000,000 of French manufactures were exported, against 730,000,000 during the corresponding period last year. The imports of manufactures were in an equally unsatisfactory condition, having fallen during the same period from 290,000,000 to 267,000,000. "This all looks very bad, and French politicians and political economists draw very long faces." Yet the exports of manufactures for the same period were in 1881 only 668,000,000. In 1880 they rose to 691,000,000, but in 1879 and 1878 they were as low as 643,000,000 and 630,000,000, respectively. The same is true of the imports of manufactures, which for the last ten years have never been nearly so high as at present, except in 1883 and 1882. "It is, therefore, evident," writes the correspondent, "that the present so-called crisis in trade is much exaggerated, and that the utmost that can be said is that trade is dull or not so good as it has been during the last two years."

On the 25th of June, the Prince of Wales opened the first London Technical University. The opening of this institution, which is situated in Exhibition Road, South Kensington, is due to the munificence of the various City Guilds. The plans were prepared, and the building erected under the superintendence of Mr. A. Waterhouse. The building contains spacious class rooms, lecture theatres, libraries and museums, also, and what is highly important, mechanical workshops, and physical, chemical and metallurgical laboratories. A suitable engine will be furnished to supply the power for the various shops and laboratories, and a second engine is proposed to be added for experimental purposes. The course of instruction includes mathematics, mechanics, physics, chemistry, drawing, manufacturing technology, workshop practice, applied art and modern languages. The principal professorships will be filled by Professors Henrici, Armstrong, Unwin and Ayrton. The fees are moderate, an important point, considering that this University shall benefit a class unable to pay large fees. The Director is Mr. P. Magnus, well known in connection with the City and Guilds of London Institute. It is expected that this University will be ready for the reception of students on January 1, 1885.

A lecture on the Chemistry of Bread-making was delivered recently at the Health Exhibition

by Professor Charles Graham. The lecturer gave an account of the art of bread-making, pointing out by means of analytical tables the great variety in the constitution of wheat grown in different counties, and how it was affected by climatic conditions at the time of harvest, and showed how desirable a scientific knowledge on this subject was, in order to enable the miller and baker to mix together different qualities of flour, in order to obtain the best result. He expressed a decided preference for a well-baked loaf, made in the ordinary way—with yeast, to either the aerated bread or bread made with any of the various baking powders, in the use of which there was always a danger of there being an excess of hydrochloric acid. Mr. Bonthron, a practical baker, in seconding a vote of thanks which was given to the lecturer, said his own experience had been fully borne out by the scientific explanation of the process given by Dr. Graham, and he would impress upon his fellow craftsmen the importance of attending to the point mentioned in the lecture, that the finest flour took more time in preparation than that which was inferior, and that it was quite impossible to hurry the process.



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HOOVER'S IMPROVED DIAMOND MILLSTONE DRESSING MACHINE.

ADAPTED TO ALL KINDS OF DRESSING.

No 1, to face and crack	\$25.00
No. 2, to face, crack, dress furrows, and will dress any size stone.....	45.00
No. 3, to face, crack and dress furrows.....	40.00

Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

C. S. HOOVER, Patentee and Manufacturer, 409 East King St., LANCASTER, PENN.

GREAT TRIUMPH IN INVENTION

The Simplicity so long sought after in Roller Mills attained at last.

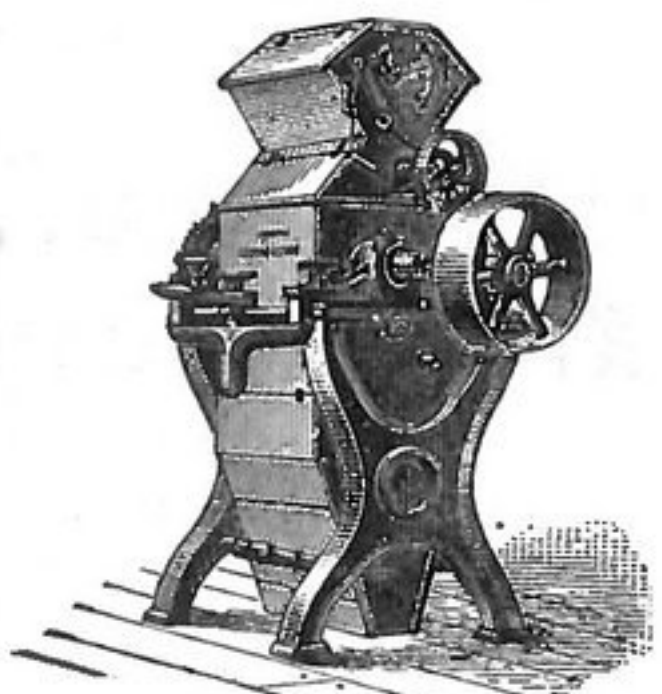
ONE, TWO, OR FOUR BREAKS IN A SINGLE FRAME

SIZES OF ROLLS 9x18 and 7x14 INCHES.

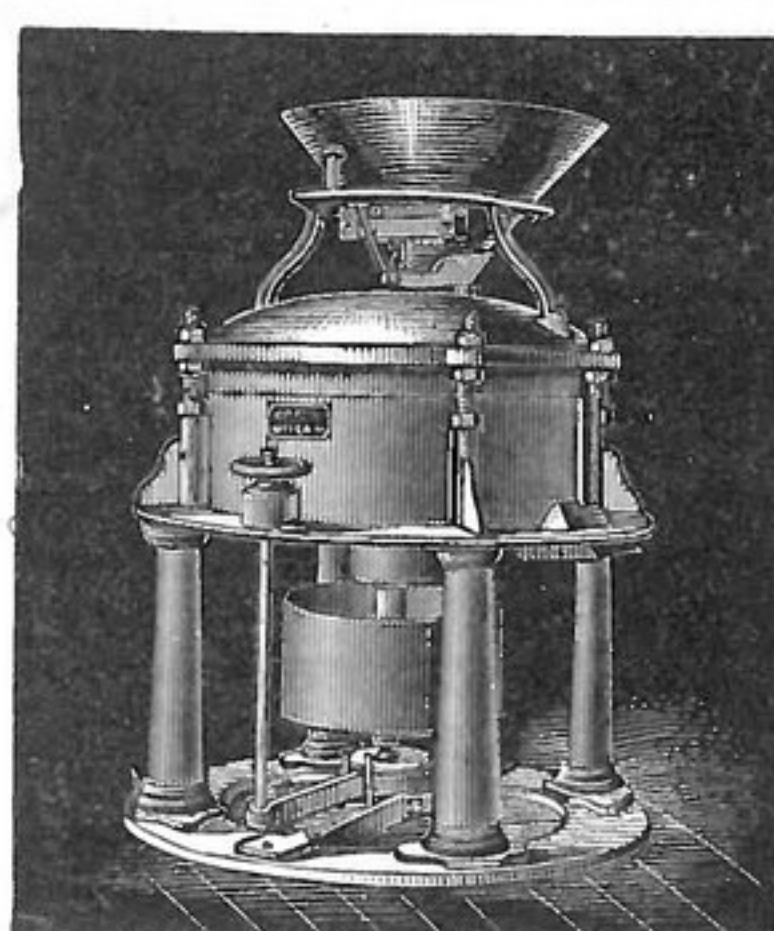
NO CROSS BELTS. NO FRICTION. NO LOSS OF POWER.

Reduction Rolls, Bolting Cloth, Purifiers, Middlings Mills and Bolting Chests. General Mill Furnishing Supplies.

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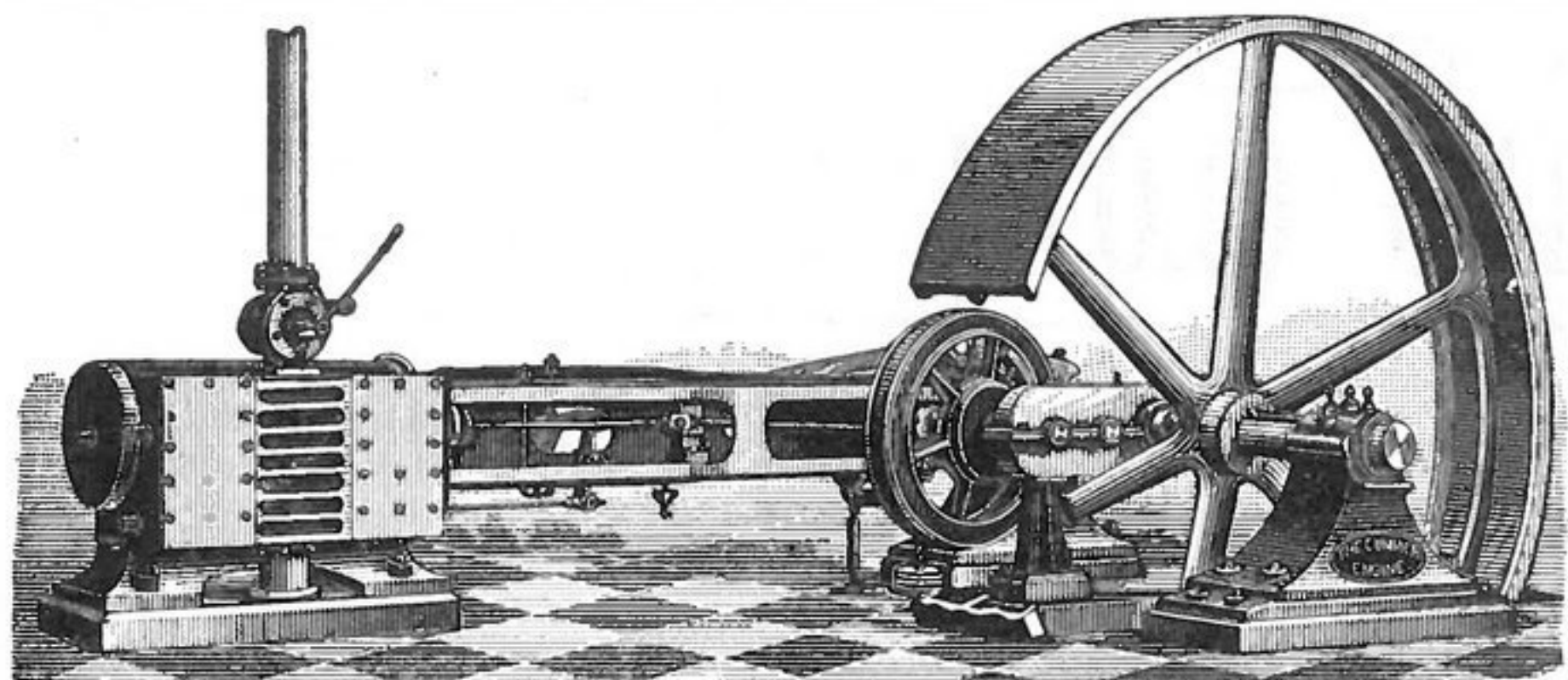


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MANUFACTURERS OF Munson's Celebrated Portable Mills, FOR WHEAT, MIDDINGS, CORN, FEED, Etc. Millstones, Hangings, Bolting Chests, Shafting, Gearing, Pulleys, Hangers, Etc.

DEALERS IN EVERY KIND OF MILLING MACHINERY, ENGINES AND BOILERS, WATER WHEELS, Etc. Genuine Dufour Bolting Cloth. Specifications, Estimates and Plans furnished.

MUNSON BROS. Address, P. O. BOX 380, UTICA, N. Y.



THE CUMMER AUTOMATIC ENGINE

IS UNEQUALED IN
Ease of Operation, Effective Duty,
Close Regulation,
In Quick Starting up to Speed,
Uniformity of Speed & Economy of Fuel.

Awarded the Gold Medal at the Cincinnati Exposition, and a special prize for extraordinary merit; also the highest medal at Louisville for the best automatic engine.

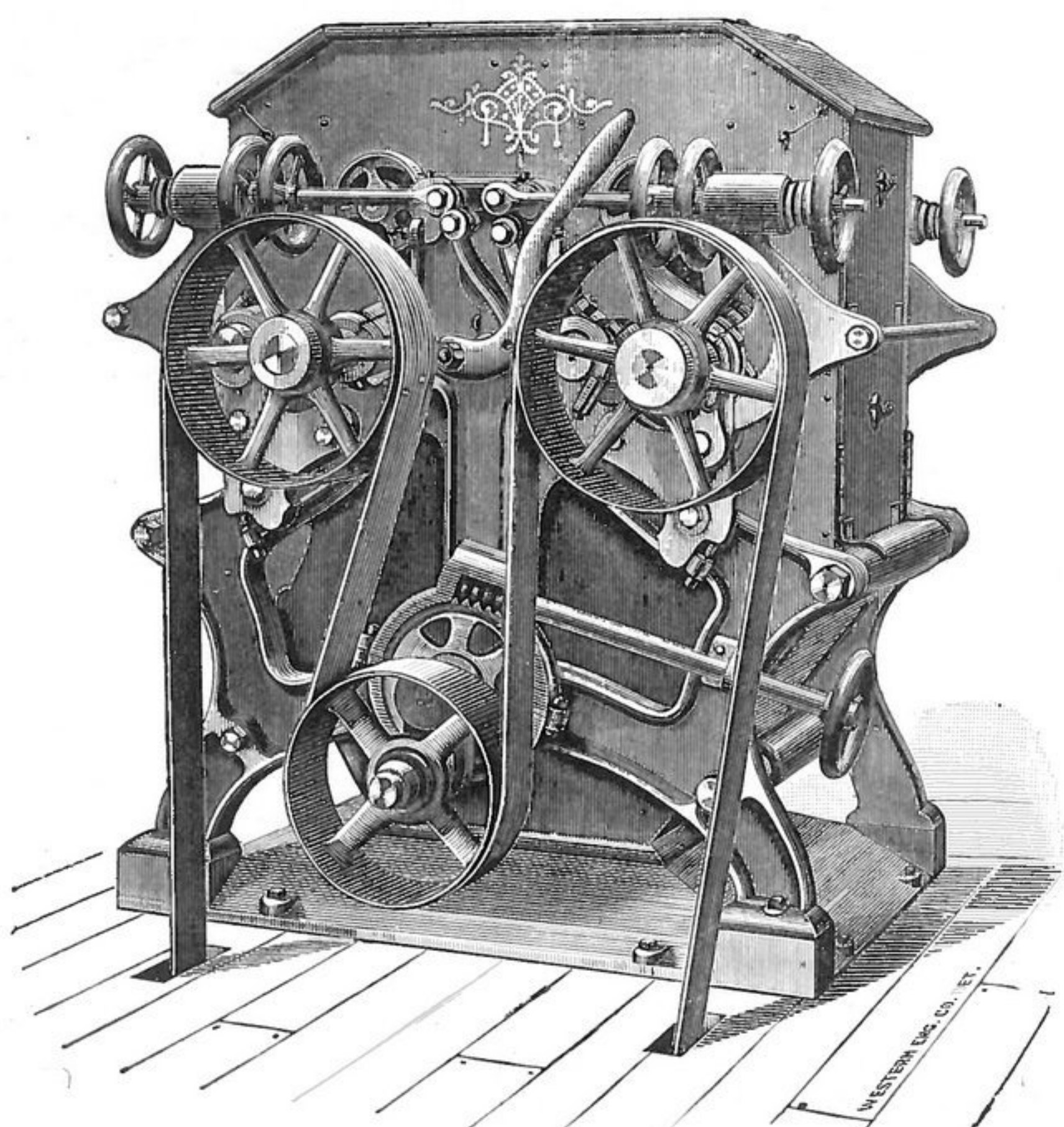
IT IS THE BEST ENGINE MADE.

These are points of importance with every miller and manufacturer who expects prompt, even duty of an engine. Printed matter, cuts, and information promptly furnished on application. Send for our 150 page Illustrated Catalogue.

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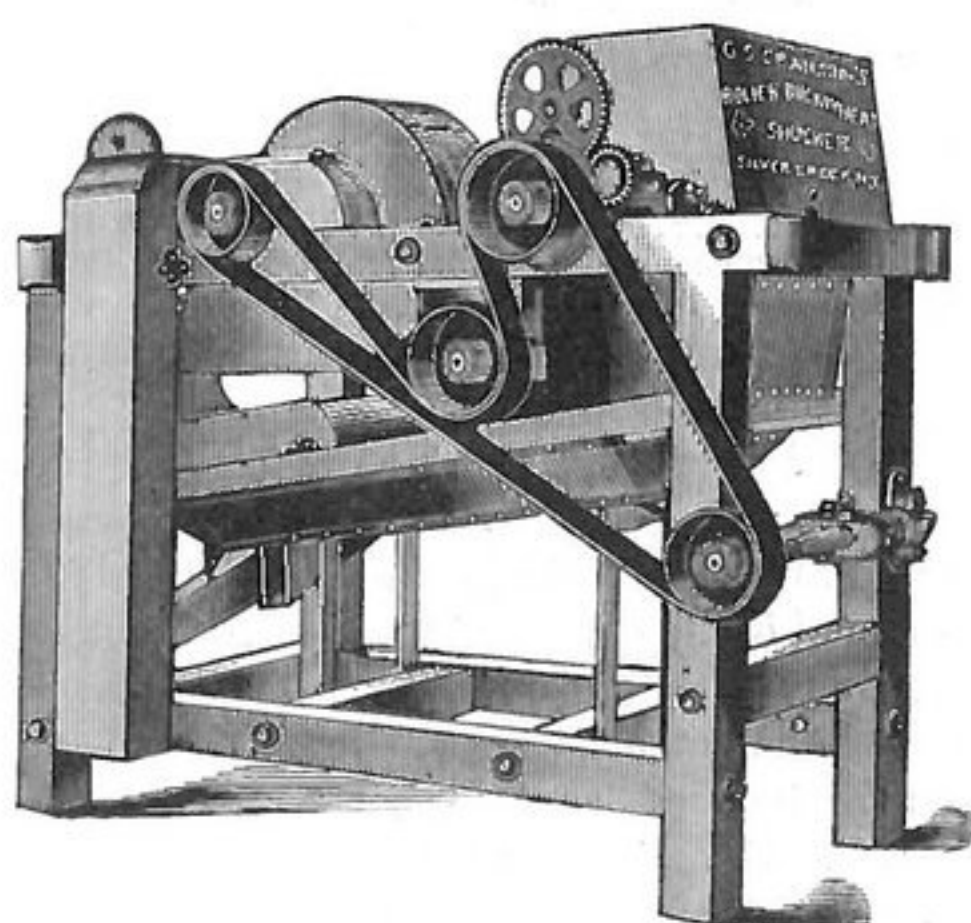
The MILLER ROLLER MILL



Has no superior. Universal Tightener, Automatic Feed, Tight Base, Noiseless, with Non-Cutting Corrugations. We also manufacture the Rider Wheat Break, which has no equal for 1st, 2d and 3d Breaks. Send for Reference and Circulars of our Machines.

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BUCKWHEAT MILLERS



WILL FIND IT TO THEIR DECIDED
ADVANTAGE TO INVESTIGATE THE
CONCEDED MERITS OF

**CRANSON'S SILVER CREEK
ROLLER BUCKWHEAT SHUCKER**

ITS SUCCESS IS BEYOND QUESTION.
ITS VALUE HAS BEEN DEMONSTRATED
IN MORE THAN 800 CASES. IT
IS THE ONLY PERFECT BUCKWHEAT
SHUCKER IN THE WORLD.

G. S. CRANSON & SON, PROPRIETORS SILVER CREEK, N. Y.

HEAD LININGS AND COILED BARREL HOOPS.

Our Celebrated Patent
Head Linings are straight
Rounded on their upper edge
nail on barrel. They will
freely through the square
are packed. We can furnish
from twelve to seventy-two
GOOD Head Lining can



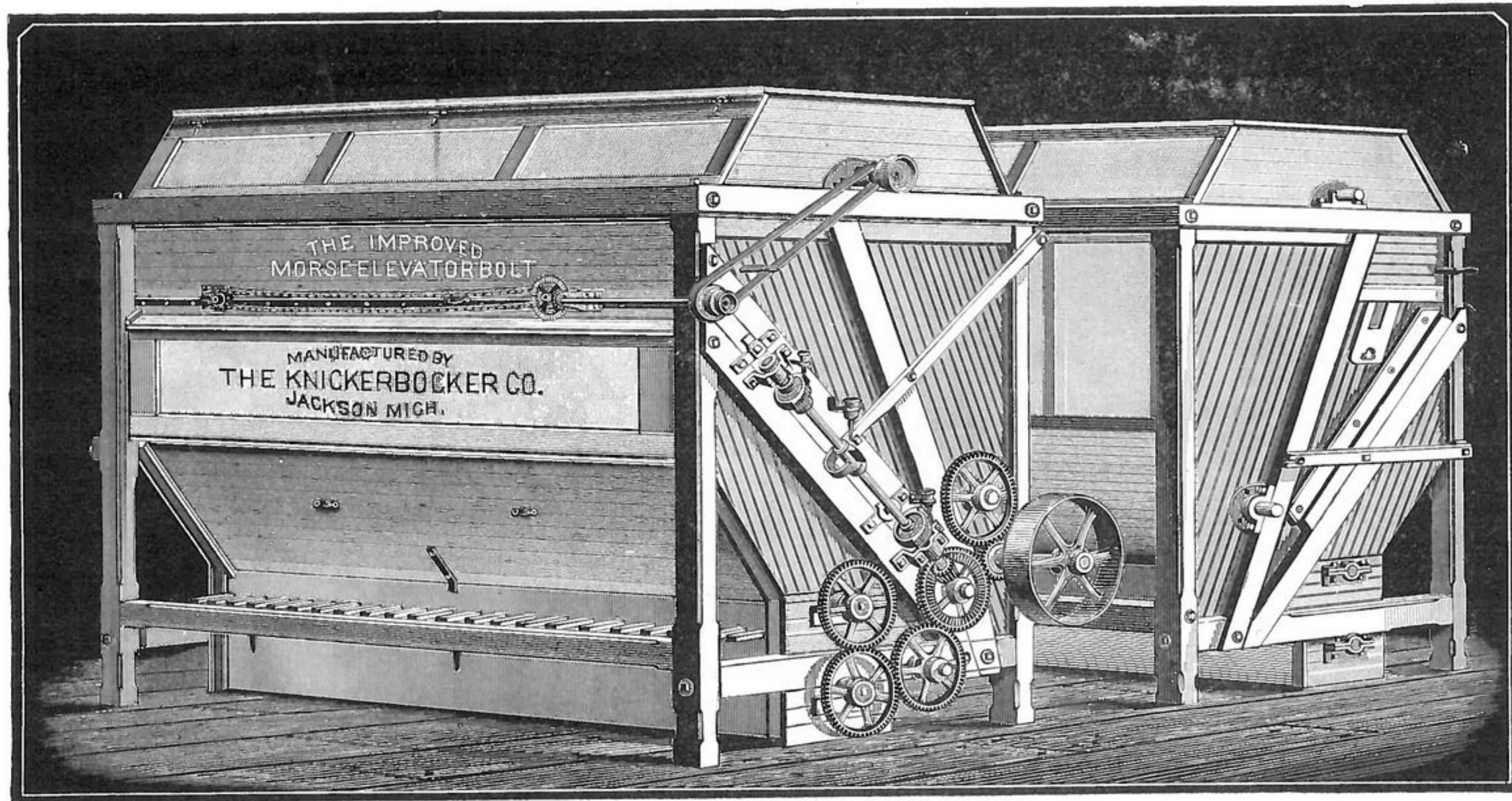
Round Edge Bent Barrel
grained from end to end,
and crimped or bent ready to
not mold, as the air circulates
bundles of 250 in which they
them any desired length,
inches, and as cheap as any
be sold.

CAN FILL ALL ORDERS AT SIGHT.

REED & SILL COOPERAGE CO.,

DETROIT, MICHIGAN.

The Improved Morse Elevator Bolt.

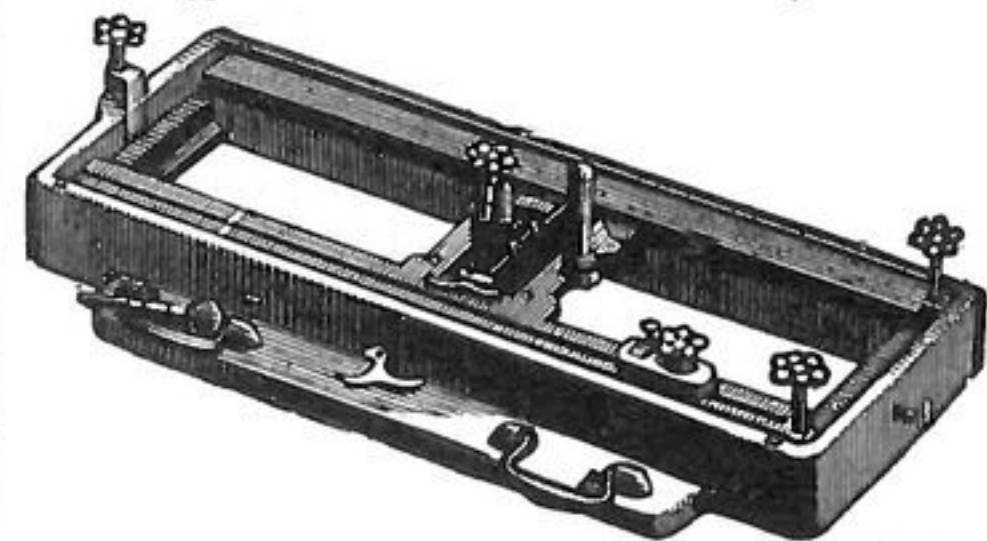


DEMONSTRATED IN OVER 100 MILLS TO BE THE BEST BOLTING DEVICE KNOWN.

THE KNICKERBOCKER CO., JACKSON, MICH.

AUTOMATIC ROD FEED!

A NEW INVENTION.
NO EQUAL IN MANY RESPECTS.



Adapted to all kinds of dressing on right or left hand burrs; convenient to place machine over spindles, are ample long and wide. All adjustments and regulations are quick and easily made without the use of any tool. By the use of this rod feed deeper facings can be done by once going over the face, as the feed can be set to over 1,000 cuts per inch, and is instantly regulated as desired, to suit the depth of cut, in other words to cut fine or coarse when in motion, making it complete, and a great saving of time in this respect, as well as others. Forease of operation and adjustment it is far superior, also for merit and simplicity. All is fully guaranteed to be as represented. Machines have now been in use for four years, and not a single call has been made for any repairs. Also a new Improved Patent Diamond Holder, which is specially adapted to hold any shaped diamond; convenient to set a diamond. Facing can be done to good advantage with two diamonds at one time. The carriage can be taken out at end of machine and replaced in a half moment's time, all is complete. A revolution in several respects. Machines will be forwarded on their own merit, by parties giving good references. Send for circulars giving full description.

C. A. BERTSCH,
Sole Manufacturer, Cambridge City, Ind.

HAS BEEN AWARDED
FIRST AND ONLY PREMIUM
AT THE
Millers' International Exhibition.



Office of THE MILLING WORLD.
Buffalo, N. Y., July 30 1884.

Sam Tallmadge the Milwaukee statistician, figures up, from governmental and state investigation, the spring wheat yield in the five principal spring wheat states at 156,000,000 bushels, as follows:

Minnesota.....	44,000,000 bushel
Iowa.....	33,000,000 "
Nebraska.....	32,000,000 "
Dakota.....	26,000,000 "
Wisconsin.....	21,000,000 "

The winter wheat crop is very nearly harvested and is, as a rule of exceptionally fine quality, and abundant in yield. Samples of new flour attest this. *Bradstreet's* says: The outlook for spring wheat, harvesting which will be generally under way next week, is for an exceptionally large crop, and the most conservative in the trade now have faith in a crop in excess of 504,000,000 bushels. The visible supply is under 12,000,000 bushels, and, judging from the liberal receipts at the southwest, it is likely to increase hereafter. The price of wheat has declined, owing to favoring crop reports mainly. The loss on the week for winter has been $\frac{3}{8}$. Indian corn has been stronger, owing to small stocks, limited supplies at the west, heavy consumption and the possibility of a corner. It has gained $\frac{1}{2}$ c.

From the *Commercial Bulletin* we gather that there has been an increase of 23,588 bushels in the amount of wheat in store in New York, and it is now 905,230 bushels against 881,642 bushels last week. The stock of No. 2 wheat is now 439,080 bushels—an increase of 106,548 bushels as compared with last week. The further contributions to the swelling movement of grain at the interior bear testimony to the statements received from the west as to the abundance and excellence of the crop. At all points of accumulation receipts are large, and the capacity of outward vessels for grain carrying is strained to the utmost. The consequence is a very strong freight market. The scarcity of ocean tonnage is likely to lead to an early increase in the visible supply figures, with a reasonable estimate as to the probable extent of the interior movement, although the wants of the foreign consumers, the low price of the grain, and the superior quality of it, all point to a continued large outward movement, limited only by the available tonnage. Already the full rates current for ocean freight are attracting vessels in ballast to this seaboard. The one conspicuous possibility against a continued large outward movement of wheat is suggested by the talk which is now going the rounds of the exchanges of a probable and general speculative boom. As to this, however, there is nothing but talk. Present appearances may be said to be against any such misfortune. The Chicago market for wheat was said to have been bulled to-day on reports of United Kingdom storms, stronger cables, probable light interior receipts and some bad weather at the west. In all these particulars they were only partially correct. The weather in the United Kingdom was officially reported as showery; private advices say "slightly unsettled," and call the foreign markets easier at the close. Exporters have been paying an advance of $\frac{1}{2}$ to $\frac{3}{4}$ c for spring wheat, without finding much for sale at any price. Winter wheat has shown no change in price, and the whole market for cash wheat is very quiet and the local milling demand is also small. Cash wheat is also steady. Whatever of energy or advance the speculative market has shown, the impulse for the condition has emanated solely from Chicago, where the bull materials have been worked for all they have been worth. Late advices from the West indicate that the bull interest is a little weak-kneed at the close of the markets. Here the speculative trading has been chiefly of a local character and the sum total of the option transactions is meagre. Full receipts; an increasing proportion of new flour; irregularity in the valuations placed upon the new receipts; no particular change in quotations for any grade; firmness for the low grades; weakness for new flour; export demand generally moderate; trade demand a little more active; certain brands of old flour scarce and commanding premiums; the general market fairly steady in tone; the outlook regarded as favorable for a free business at low

DUFOR & CO.'S CELEBRATED BOLTING CLOTH.

prices. These are the features of the market for flour. Rye flour is quiet, but steady. Corn goods are steady. Bag meal firmer. Mill feed in moderate demand and steady.

FOREIGN EXCHANGE.

The market for sterling was quiet, there being no steamer until Wednesday. Commercial bills are in only fair supply. The posted rates closed at 4.83 for sixty-days' and 4.85 for demand. The actual rates ranged: At sixty days' sight, 4.82@4.82 $\frac{1}{4}$; demand, 4.84@4.84 $\frac{1}{4}$; cables, 4.84 $\frac{3}{4}$ @4.85, and commercial, 4.80 $\frac{1}{2}$ @4.80 $\frac{3}{4}$. Continental exchange very dull; francs, 5.21 $\frac{7}{8}$ @5.21 $\frac{1}{4}$ and 5.18 $\frac{3}{4}$ @5.18 $\frac{1}{2}$; reichsmarks, 94 $\frac{1}{4}$ @94 $\frac{3}{8}$ and 94 $\frac{1}{2}$ @95; guilders, 39 $\frac{7}{8}$ and 40 $\frac{1}{8}$. The closing posted rates were:

	60 days.	30 days
London.....	4 83	4 85
Paris francs.....	5 18 $\frac{3}{4}$	5 16 $\frac{1}{2}$
Geneva.....	5 18 $\frac{3}{4}$	5 15 $\frac{1}{2}$
Berlin, reichsmarks.....	95	95 $\frac{1}{2}$
Amsterdam, guilders.....	40 $\frac{1}{2}$	40 $\frac{3}{4}$

BUFFALO WHEAT MARKET.

Buffalo, July 29, 1884.

Our grain market the past week has been firm, with good milling demand for wheat. The advance in price of our Northern Pacific wheat has stopped all demand for export trade, and holders are more inclined to meet buyers. No. 1 hard sold at \$1.05. No. 2 hard \$1.00, though choice lots of No. 1 hard are held firm at \$1.06. No. 1 regular 98@99. New red winter is arriving by lake and rail, and selling freely at 96c for No. 2. Carloads sold for 95@98c as per sample; some long berry sold at 99c for carloads on track. White wheat very scarce, and holders seem to think millers must pad their price for it, but there are very few sales made, and we quote P. T. Corn in good demand and stock very light at present. No No. 2 here. No. 3 held at 60c. Good feed corn sold at 58c sample lots 56@58 as per condition. Most of the corn that has arrived in cars is in very poor condition, and some of it has been sold at 45c. Oats steady and in fair demand for carloads of good No. 2 white or mixed western. No. 2 white 38 $\frac{1}{2}$ c; No. 2 western mixed 37c. Sample lots sold at 31@34c. Other grain nominal.

JAMES S. MCGOWAN & SON.

BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring \$5.00@5.50; straight Duluth spring, \$5.50@5.75; amber, \$5.50@5.75; white winter, \$5.25@5.50; new process, \$6.50@6.75; Graham flour, \$5.00@5.25. Western straight Minnesota bakers, \$5.50@5.75; clear do, \$5.00@5.50; white winter, \$5.50@5.75; new process, \$6.50@7.00; low grade flour, \$2.50@4.00. CORNMEAL—Market steady, with a fair demand. Coarse, \$1.15; fine, \$1.25 per cwt. RYE FLOUR—In fair demand at \$3.75@4.25. OAT MEAL—Ingersoll, \$5.75; Bannerman's granulated, \$6.00; Schumacher's Akron, \$6.25 per bbl. BUCKWHEAT FLOUR—Demand fair at 3.50 per cwt. WHEAT—Dull. Sales 500 bu. No. 1 hard Northern Pacific at \$1.05, and 5,000 bu. do. at \$1.02 October. At the Call Board \$1.04 asked to arrive, \$1.05 asked July, \$1.05 asked \$1.04 bid August, \$1.04 asked, \$1.02 bid September, \$1.02 asked \$1.01 bid year. Choice new No. 1 red held at 95c. CORN—Scarce. Sales six car-loads No. 2 at 59c on track. No. 2 quoted at about 60c on track, but none here. OATS—No. 2 white nominal at 40c, and mixed at 37@38c. BARLEY—Season over; market nominal. RYE—Last sale of No. N2 Western was made at 72c.

OUR 1884 WINTER WHEAT CROP.

Taken as a whole, says the N. Y. *Produce Exchange Reporter*, the winter wheat harvest just gathered has given us one of the largest crops in this country. It is in every respect a magnificent crop, the grain being remarkably plump and heavy, the receipts thus far ranging from 59 to 64 pounds weight per measured bushel, and possessing every requisite for the manufacture of a superior quality of flour. If the spring wheat harvest turns out equally well, 1884 will doubtless be entitled to and receive the distinction of the banner wheat crop year.

The superiority of this year's winter wheat, and especially over that of last year, which was an essentially immature crop—the grain being greatly deficient in weight and lacking materially in nearly every property needful in producing a good nutritious bread making flour—very naturally suggests the question of comparative values thus: If 60 pounds of 1883 No. 2 red winter is worth one dollar, how much is 60 pounds of the same grade of 1884 red winter worth? How much more and how much better flour, and consequently bread, will the one produce than the other? This may seem a small matter to some, but it is not. It is a question involving many millions of dollars. In the first place it will not take nearly so many pounds of 1884 wheat as of 1883 to make a barrel of flour; in the second, a

barrel of flour from the former will turn out many more loaves than a barrel from the latter; and finally, the bread from the former possesses greater nutritive qualities than that from the latter. If in these three respects an approximate estimate could be reached of the relative worth of the 1884 and 1883 wheat, some idea might be formed as to the money value of the two crops, that of 1884 exceeding that of 1883 by 100,000,000 bushels, measure, easily enough.

For the purpose of investigation and argument the *Reporter* submits the following: The 1883 winter wheat crop turned out 300,000,000 measured bushels, and that of 1884, 400,000,000; the average weight per measured bushel of the latter crop is 6 pounds heavier than that of the former, it being estimated to average 51 pounds against 54; hence the weight of this year's crop would exceed that of 1883 by 131,666,666 bushels of 60 pounds each. Let it next be assumed that it took an average of 5 bushels of 60 pounds each of 1883 wheat to make a barrel of flour, and that only 4 $\frac{1}{2}$ bushels of 1884 wheat is required for the same purpose. On this basis the 1883 crop was equal to 55,000,000 barrels of flour and the 1884 equal to 90,370,000, or an increase of 35,370,000 barrels. How many more pounds of bread will a barrel of 1884 flour turn out than a barrel of 1883? We have seen tests made varying from 175 to 320 pounds per barrel according to the quality and kind of flour used. If the mean be placed at 300 pounds, and 1883 flour produced less than the mean and the 1884 more, probably 10 per cent. increase in the 1884 over 1883 would be little enough. Or let the 1884 flour be estimated at equal to 310 pounds of bread and the 1883 at equal to 285 pounds which would be rather less than 10 per cent. increase. At these rates the 1884 crop would produce 28,014,700,000 pounds, and the 1883 crop 15,675,000 pounds. Finally, what percentage may be used to designate the greater nutritive qualities of the 1884 head over that of 1883? Five per cent? That rate would show the 1884 winter wheat crop equal to 29,415,435,000 pounds of bread and the 1883 crop equal to only 15,675,000,000, or slightly over one-half as much.

The cabled review of the British breadstuffs outlook last week, notes that the weather of the preceding week was showery, with lower temperature, though there was much sunshine. The early wheats are reported to have been considerably storm beaten, but the late wheats, though thin, were benefited by the rain. The crop is said by the *Mark Lane Express* to be equal to an average. The off-coast trade was without animation and prices were practically unchanged. Regarding British stocks, the Messrs. Harris Bros. & Co., of London, on July 10, state that "London wheat and flour stocks are nearly 15,000 quarters (or about 1,200,000 bushels) less than at this period last year, so our enormous stocks on January 1, have got rapidly absorbed indeed." The imports into France are said to be increasing, and prices of wheat and flour there have slightly advanced. Austrian and Hungarian wheat markets are firm, and it is generally admitted that material damage has been done the crops in those countries. The New Zealand surplus of wheat is given at 4,000,000 bushels, but not much is expected in the United Kingdom at present low prices. The London *Miller* says: "We hear of no bears for August, September, or latter autumn. The bear, who is, in commercial slang, a seller of stock which, by falling markets, he expects to command in the future at lower rates than at present, is nowhere rampant. Very few millers indeed, even if there are any, would wish to accept a six months' contract for flour at 1s. per sack below this day's quotations. If this view is correct on the verge of harvest, in the face of new supplies from home and foreign sources, then present currencies must be, as they are, so exceedingly low that keenest competition finds no reason to risk speculation. The deliveries from farmers about equal local demand, and if there is any leaning either way millers find it rather harder than easier to buy good samples at old prices."

The recent consolidation of the Postal, Bankers' and Merchants' and the Baltimore & Ohio companies is, says the N. Y. *Commercial Bulletin*, watched with some interest by the merchants on 'Change. Many of them believe there will be a war of rates on business between the principal cities. The latest reduction by the Mutual Union is looked upon as a forerunner of further cuts, which, it is believed, the competing lines will make in the course of a few days. "We

FIRST AND ONLY PREMIUM
OVER ALL COMPETITORS!
PURCHASE ONLY
FROM RELIABLE DEALERS.

would rather have uniformity in telegraphic rates," said an old grain dealer. "The trouble is that a war of rates would do us very little good. It would be like a war of freight rates. Shippers for the time being receive a benefit, but the roads ultimately patch up their quarrels and then make us 'pay the piper.' So we fear it will be with these telegraphic companies. If this combination should break, or the Western Union and the Mutual Union come to some understanding with one of the consolidated companies, then all our cheap rates go for nothing. Merchants have found out that regular moderate tariffs are always the best." In regard to the cable rates of the future, much uncertainty prevails. Business men, however, look with interest upon the completion of the new commercial cable. There is a general belief that the rates will be 25 cents a word, though the officers of the company have maintained a deep silence on this branch of the subject. "If the land connections of the new enterprise," said a merchant, "cover points which we traders want, there is a good future for it. Many of us who now have recourse to the quick mail service, will avail ourselves of the cable if reasonable rates are quoted." It is believed the cable will be ready for business about the beginning of October.

There has been more demand during the past week for carriers to take out grain, according to *Bradstreet's*. The regular lines, however, have taken rates in hand, and have been met by a cessation of operations on the part of exporters, who are inclined to await the arrival of "tramps" to send out the freight offering. The scarcity of spot tonnage at several of the outports has been a feature of the ocean-freights market generally. Toward the middle of the week the market eased off, more particularly in berth engagements by regular British and continental lines, the demand for charters having dropped away particularly. There has been some business via regular steam lines from southern ports for cotton, as charters have not been in request. For Mexico and the West Indies the business doing has been light. The demand for naval stores was better earlier in the week, than it has been since. At Philadelphia the grain carriers are scarce for immediate loading, and vessels for August and September clearance are bringing 3@6d. more than last week. At Charlestown ocean freights are in demand with naval stores to export. Freights at Wilmington, N. C., are quiet. Demand for tonnage is limited.

The Indian corn market, has, to a large extent, sympathized with that for wheat, although the statistical position of corn points to the possibility of a squeeze, and therefore places the cereal rather more firmly in the hands of the bulls. Stocks of Indian corn are proportionately quite small.

JAMES S. MCGOWAN & SON,
SHIPPING AND COMMISSION MERCHANTS.

Choice Milling Wheats a Specialty
Room 60 Board of Trade Building.
BUFFALO, N. Y.

No Charge for Inspection.

JOHN C. HIGGINS & SON,
Manufacturers and Dressers of
MILL PICKS.
163 KINZIE ST., CHICAGO.



GOLD MEDAL—SPECIAL, 1ST ORDER OF MERIT.



Picks will be sent on 30 or 60 days' trial to any responsible Miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the United States and Canada.

Send for Circular and Price List.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Builders from the Raw Material of

ROLLER MILLS, CENTRIFUGAL REELS, FLOUR BOLTS.

WE ARE THE SOLE OWNERS FOR THE UNITED STATES OF ALL THE PATENTS UPON THIS ROLLER MILL.

This Is the Only Roller Mill Made Having All the Essentials Needed In Successful Milling.

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.
Gentlemen: In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,
 Yours, etc.,
 R. H. FAUCETT, PRES.

500 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.
Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.
 Yours respectfully,
 DAVID SUPPGER & CO.

125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.
Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.
 Yours truly,
 J. T. FORD.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

SPECIAL MILLING DEPARTMENT!

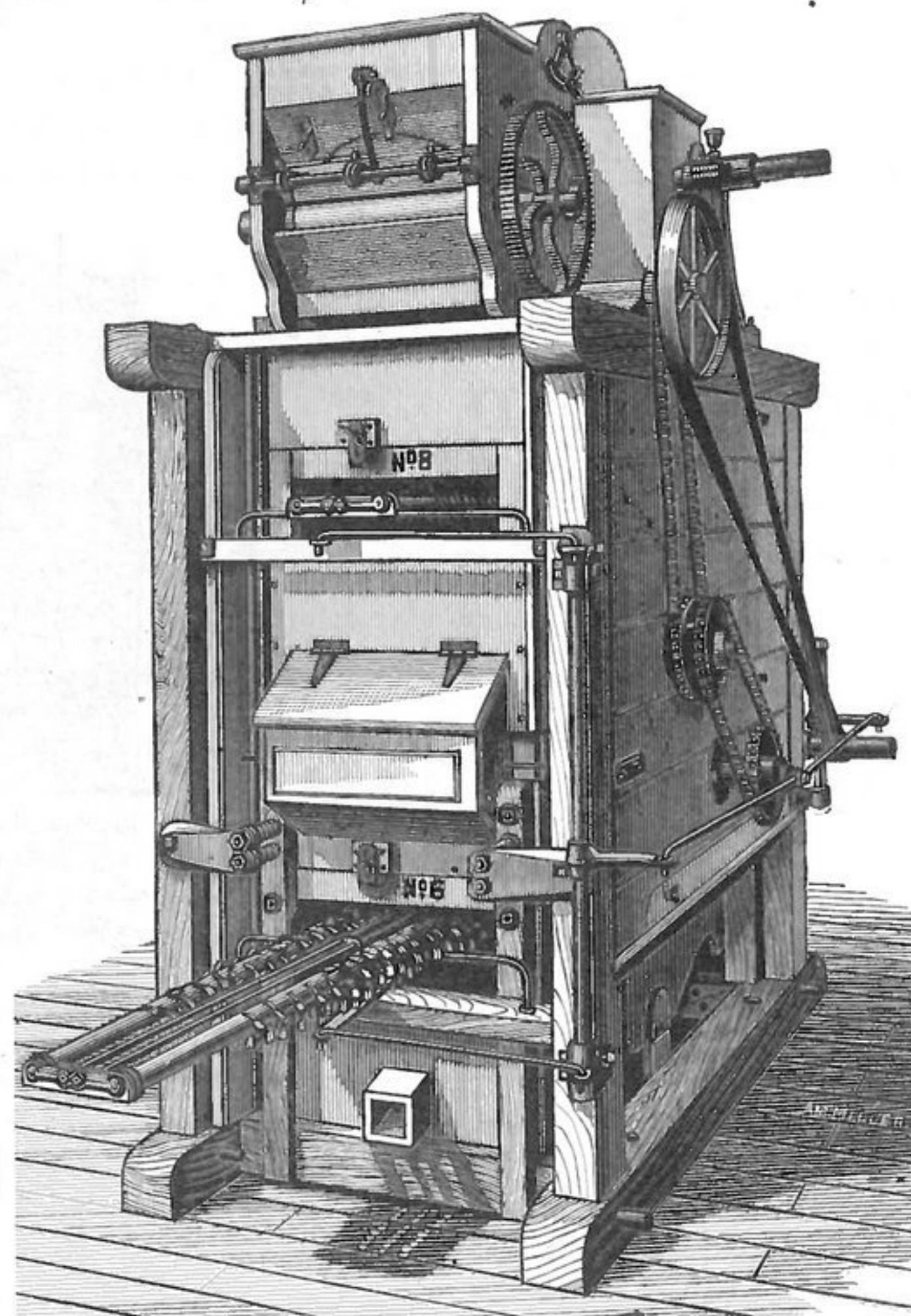
Mill Builders & Contractors--Guarantee Results

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

THE DOUBLE CURRENT PURIFIER

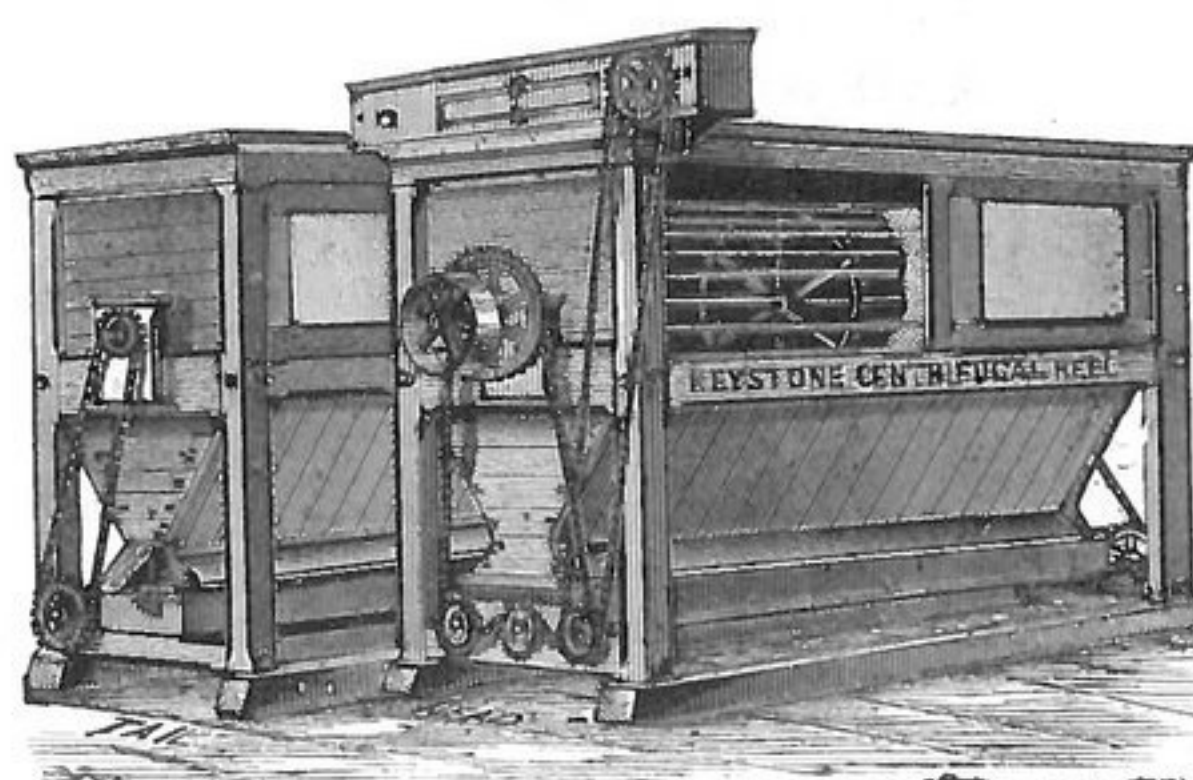
Has the Automatic Separating Feeder. It takes out the heavy specks between each number of cloth. It settles the heavy dust and lifts the light fuzz into the dust room. It has "Collins" Automatic Cloth Cleaner. Licensed under all conflicting patents. Descriptive circulars and prices on application. Mention this paper.

J. T. Walter, Sole Manufacturer, Easton, Pa.



ANTI-FRICTION
 Roller Detachable
CHAIN BELTING
 FOR
 ELEVATORS
 CONVEYORS,
 Carriers, Etc.
 AND FOR
 DRIVING PURPOSES.
 A Superior Chain Belting
 Manufactured and Sold by
Lechner Mfg. Co.
 COLUMBUS, OHIO.
 Send for Catalogues and Price List.

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Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Silk. Sent on Trial to any Responsible Miller.

ROLLER MILLS, SCALPING REELS, PULLEYS, SHAFTING AND ALL KINDS OF MILL IRONS.

Full Stock of Dufour and Dutch Anchor Bolting Cloth.

BEST QUALITY FRENCH BURR MILLSTONES, FOR MIDDINGS, WHEAT AND FEED.

Leather, Rubber and Cotton Belting, Smut Machines, Purifiers and everything belonging to a Flour Mill furnished at Lowest Market Prices. For Circulars, Prices and Full Particulars, address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.

EVERY PIECE—FOOT—THREAD —YARD—INCH—MESH— WARRANTED

PURCHASE EITHER AND ONLY

NOYE BOLTING CLOTH DUFOUR

The Noye Cloth is made expressly for our own use by C. Schindler-Escher, Zurich, Switzerland, and is the only cloth in the world which can be recognized by the **COLORED THREADS IN THE SELVEDGE**, thereby enabling us to guarantee the different qualities, and the purchaser to know what he is getting every time. This exclusive privilege is insured to us by letters trade mark.

One Green Thread Indicates Standard Quality.

One Red Thread Indicates Extra Quality.

Two Red Threads Indicate Double Extra Quality.

All these qualities are made BEFORE the piece is woven and not by mechanical means afterwards.

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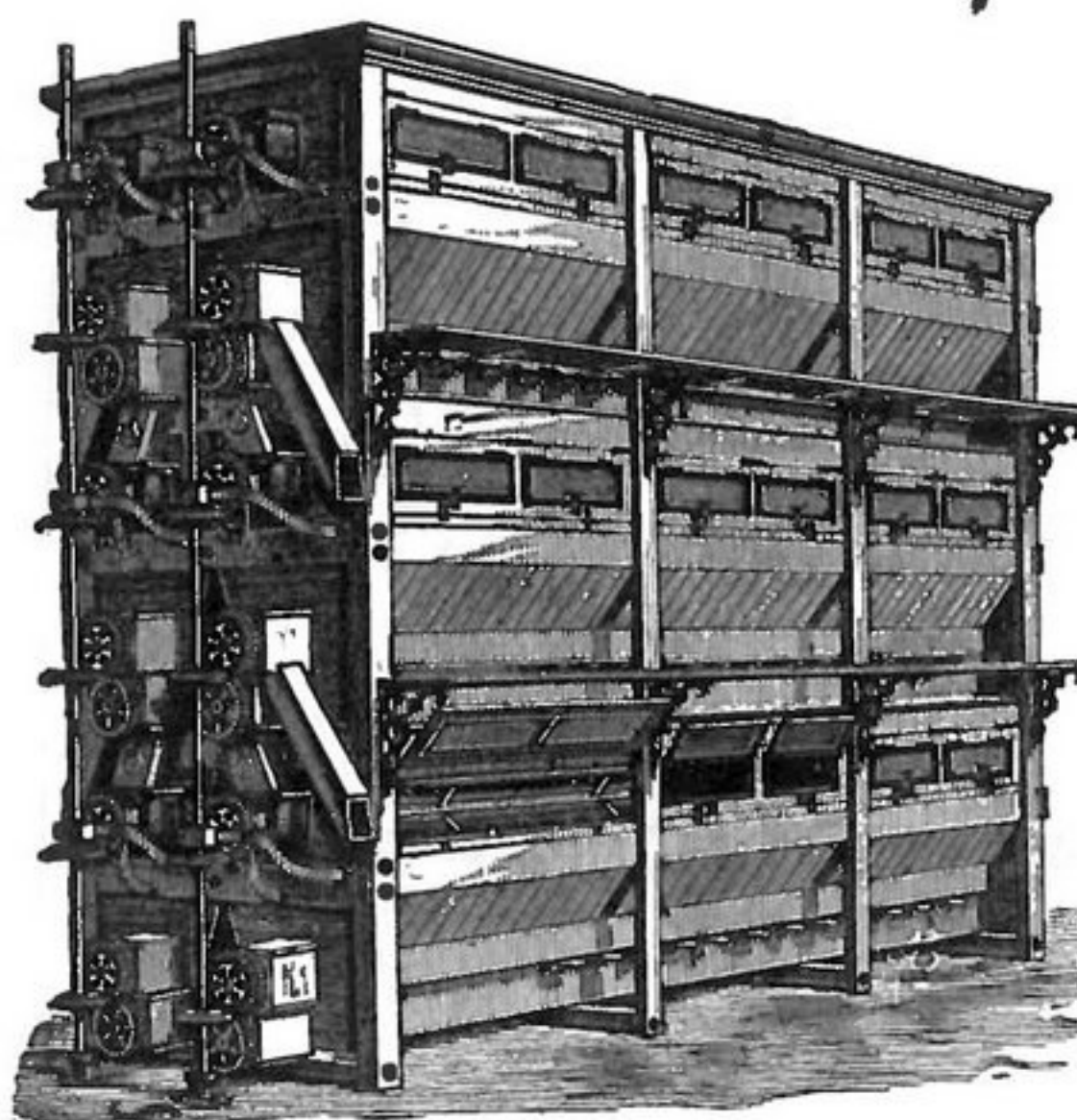
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